

HIV Surveillance, Prevention, Intervention, and Treatment in Asia

Guest Editor

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AIDS EDUCATION AND PREVENTION

HIV Surveillance, Prevention,
Intervention, and Treatment in Asia

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Preface

Irving Chen and Mary Jane Rotheram-Borus

The University of California Los Angeles (UCLA) AIDS Institute takes great pride in sponsoring the publication of this special issue of *AIDS Education and Prevention*, which surveys the current status of HIV/AIDS surveillance, intervention, and treatment in Asia. The distinguished contributors to this volume provide the historical and cultural contexts in which to understand the course of Asia's HIV epidemic over the last decade, and to anticipate its future direction. The authors are themselves responsible for initiating many of the key public health interventions, policies, and research programs that have thus far prevented Asia from mirroring the epidemic in Africa. Thus, this special supplement reflects the on-the-ground expertise in 14 Asian countries that has guided the region's response to HIV.

Asia contains substantially more than half of the world's population. India and China alone have a burgeoning population of more than 2.5 billion people. While not currently having HIV rates above 2 to 3%, India, China, and Indonesia have three of the fastest-growing epidemics. There is a core epidemic in each Asian country that could cause the impact of HIV to triple within the next 10 years. Thus, it is appropriate that the XVth International AIDS Conference is being held in Thailand, one of the first countries in the world—and the first in the developing world—to slow the pace of its epidemic through government intervention.

This volume was made possible by the UCLA AIDS Institute, which has been training professionals, conducting research, and designing, evaluating, and disseminating interventions to fight HIV/AIDS since the early 1980s. Members of the faculty of the UCLA AIDS Institute are currently conducting research in Asia, Southeast Asia, Southern Asia, and Australia, as well as Africa, Latin and South America, and eastern and western Europe. Some 150 investigators affiliated with the Institute receive more than \$38 million in government funding annually to advance the understanding of HIV and its impact, making it the fourth largest program in the United States.

The UCLA AIDS Institute is committed to eradicating HIV infection worldwide, and its faculty members are eager to share their extensive experience with other researchers, community providers, the advocacy community, healthcare professionals, medical providers, policy makers, and families and children affected by HIV.

The UCLA AIDS Institute has played a leadership role in training health professionals in HIV/AIDS surveillance and treatment since 1988, primarily through the UCLA/Fogarty AIDS International Research and Training Program. Under the auspices of the Fogarty training program, directed by Roger Detels, M.D., M.S. of the School of Public Health, 56 public health professionals have received their Ph.D. or M.S. degrees focused on HIV epidemiology, behavioral, and social sciences since 1988 (see appendix). Another 30 trainees are currently working towards their M.S. or Ph.D. degrees. In all, 81 of the trainees have been from Asia and either have or will return to their countries to fight the epidemic (see map, pg. ix).

Dr. Detels has been able to facilitate partnerships between UCLA Fogarty graduates and other UCLA faculty to build international expertise within the university, to conduct world-class international research, and to make significant strides towards reducing the HIV epidemic. For example, several of these projects have resulted in the first report of the HIV epidemic among plasma donors in China (Wu Z, Detels R., HIV-1 infection in commercial plasma donors in China, *Lancet* 346:61-62, 1995); the first community intervention program to reduce the incidence of new drug users in China (Wu Z, Detels R, et al., Community-based trial to prevent drug use in Yunnan, China, *Am J Publ Hlth* 92:1952-1957, 2002); the recognition of HIV subtype E as the major strain of HIV in Vietnam (Nerurkar VR, Detels R, et al., HIV-1 subtype E in commercial sex workers and injection drug users in southern Vietnam, *AIDS Res Hum Retroviruses* 12(9):841-843, 1996); and documentation of the greater cost effectiveness of modified syndromic treatment for STDs among men in China (Liu H, Jamison D, Li X, Ma E, Yin Y, Detels R, Is syndromic management better than the current approach for treatment of STDs in China, *Sex Transm Dis* 30(4):327-330, 2003). The UCLA Fogarty program also assisted the governments of Thailand, Myanmar, the Philippines, and Indonesia in the development and evaluation of their sentinel surveillance programs.

In addition, short courses on various aspects of HIV/AIDS control have been offered in almost all of the countries of the region, as well as in eastern Europe, Africa, and South America. In collaboration with the Chulalongkorn University College of Public Health and UNAIDS, the UCLA/Fogarty AIDS International Research and Training program has, since the early 1990's, convened an annual regional course in Bangkok for health professionals from Asia and the Pacific. Several hundred health professionals from these and other countries have participated in these and other short courses sponsored by UCLA. The cumulative impact of the ongoing work of these professionals is substantial. Twelve of the 14 papers in this special issue were authored or co-authored by former trainees. Former trainees now hold prominent positions in their home countries in the government, universities, non-government organizations, and internal agencies, as well as in UNAIDS and the World Health Organization.

We wish the organizers and the participants of the XVth International Conference success in advancing the fight against HIV/AIDS. We anticipate that the publication of this special issue will advance that goal. We have confidence that this contribution reflects only one small step in continuing the substantial efforts of both UCLA researchers and Fogarty scholars in addressing and battling the HIV pandemic.

Irvin Chen, Ph.D., Director
Mary Jane Rotheram-Borus, Ph.D., Associate Director

APPENDIX.**KEY RESEARCH COMPLETED BY FOGARTY TRAINEES AND UCLA STAFF**

In addition to the projects listed below, there have been three studies in Brazil and two in Hungary by UCLA/Fogarty graduates.

CAMBODIA

- | | |
|--------------------------|--|
| Chhuon, Samrith, M.D. | “Are police in Cambodia a higher risk group than the general male population for HIV infection?” (M.S., 2001) |
| Saphonn, Vonthanak, M.D. | “Incidence of HIV in Cambodia, 1999–2001, using the detuned ELISA assay” (Ph.D., 2003) |
| Hor, Leng Bun, M.D. | “Demographic characteristics, sexual behavior, HIV/AIDS knowledge, and HIV status among clients of brothel workers in Cambodia” (M.S., 2002) |

CHINA

- | | |
|---------------------|--|
| Ding, Yanpeng, M.D. | “HIV prevalence and sexual behavior patterns among female commercial sex workers in Zhengzhou, China” (M.S., 2002) |
| He, Na, M.D. | “Epidemiology of HIV/STD among male migrants in Shanghai, China” (Ph.D., 2003) |
| Hu, Peifeng, M.D. | “The predictive value of natural killer cells in the progression of HIV disease” (Ph.D., 1996) |
| Ji, Guopeng, M.D. | “Sexual risk behaviors among HIV positive people in areas with a high proportion of former plasma donors in rural China” (Ph.D., 2004) |
| Li, Yan, M.D. | “Sexual behavior, client characteristics, and STIs among sex workers in rural townships in Guangdong, China” (Ph.D. in progress) |
| Liu, Hongjie, M.D. | “Sexual behavior, knowledge, and attitudes related to AIDS in a rural area of Anhui, P.R. China” (M.S., 1998) |
| Liu, Hongjie, M.D. | “Effectiveness of the syndromic approach for management of male STD patients with urethral discharge and genital ulcers in China” (Ph.D., 2001) |
| Ma, Wei, M.D. | “Barriers to voluntary HIV counseling and testing among young adults in China—A comparison between two different areas” (Ph.D. in progress) |
| Ren, Ci-zao, M.D. | “Estimation of risk of unsafe injection in rural areas in Anhui, China, P.R.” (M.S., 2002) |
| Wu, Zunyou, M.D. | “The prevalence, incidence and predictors of HIV risk-associated drug-using behaviors among adolescent and young adult males in Longchuan County, Yunnan, China” (Ph.D., 1995) |
| Zhao, Guoben, M.D. | “The distribution of people seeking sexually transmitted disease (STD) treatment in various types of treatment facilities in Chao Yang District, Beijing, China” (Ph.D., 2004) |

INDIA

- | | |
|-------------------------------|---|
| Deb, Alok, M.D. | “HIV/STD prevalence and associated risk behaviors among migrant and non-migrant male factory workers in Kolkata, India” (Ph.D. in progress) |
| Gangopadhyay, Dwijendra, M.D. | “Evaluation of the Sonagachi Project, an STD/HIV intervention program targeted to female sex workers in Kolkata, India” (M.S. in progress) |
| Mukhopadhyay, Mita, M.D. | “An analysis of the data obtained from the NIH survey conducted in 1989 to examine the difference in risk perception of AIDS according to the ethnic group of the respondents” (M.P.H., 1994) |
| Sarkar, Swarup, M.D. | “Risk factors for HIV infection among IDUs in Manipur, India” (M.S., 1994) |
| Talukdar, Arunasu, M.D. | “Risk behavior, STDs, and HIV prevalence among the homeless in Kolkata, India” (Ph.D. in progress) |

INDONESIA

- | | |
|---------------------------|--|
| Ariawan, Iwan, M.D. | “Software development for WHO/GPA prevention indicators surveys for evaluating the progress of the national AIDS program in Indonesia” (M.S., 1995) |
| Haryanto, Budi, M.D. | “The association of sexual behavior changes to the incidence of sexually transmitted diseases among male clients of commercial sex workers in three seaport cities in Indonesia from 1996–1998” (M.S., 2000) |
| Riono, Pandu, M.D. | “Sexual networks and sexually transmitted diseases in communities in Indonesia” (Ph.D., 2001) |
| Sudaryo, Mon Dastri, M.D. | “Prevalence of HIV infection and sexual practices among recently diagnosed cases of tuberculosis in Jakarta, Indonesia” (M.S., 1994) |
| Wibisono, Bing, M.D. | “Testing of saliva for antibodies to HIV-1 in gay men and male prostitutes in Bali, Surabaya, and Jakarta, Indonesia, using a rapid saliva test” (M.S., 1995) |

LAOS

- Rasbouth, Vankeo, M.D. "Risk factors for HIV infection among female bar workers in Savannakhet municipality, Lao People's Democratic Republic" (M.S. in progress)
- Sayabounthavong, Khanthanouvieng, M.D. "Risk factors for HIV infection and sexual behavior among young men and women, age 18–25 years, living in Bokeo province, northwestern part of Lao P.D.R." (M.S., 2002)

MYANMAR

- Lwin, Hla Htut, M.D. "Behavioral and serological study on HIV concordant and discordant couples in a Myanmar drug treatment center" (M.S., 2000)
- Lwin, Thandar, M.D. "Bacterial vaginosis: a sexually transmitted disease?" (Ph.D., 2004)
- Razak, Myat Htoo, M.D. "Trends and predictors of accepting confidential HIV testing" (Ph.D., 1995)
- Soe, Aye Myat, M.D. "Sexual behavior and STD prevalence of male and female factory workers in Yangon and Mandalay" (M.S. in progress)
- Thwe, Min, M.D. "Assessments of factors accounting for the difference in HIV seroprevalences among IDUs attending drug treatment centers in Myitkyeena and Taungyi, Myanmar" (M.S., 2002)
- Zaw, Myint, M.D. "HIV prevalence and HIV/AIDS-related knowledge, attitudes and practices among students of Yangon University, Myanmar" (M.S., 1996)

PHILIPPINES

- Ancheta, Caridad, M.D. "Risk behaviors for HIV/AIDS among returning Filipino overseas contract workers" (Ph.D., 1998)
- Borja, Maridel, M.S. "HIV/AIDS-related risk profile of Filipino male commercial sex workers" (Ph.D., 1998)
- Busa-Gacad, Evelyn, M.D. HIV seroprevalence among prostitutes in Bocaue, Bulacan, the Philippines" (M.P.H., 1991)
- Saniel, Ofelia "HIV prevalence and sexual practices among street prostitutes in the Philippines, using a saliva HIV-antibody test" (Ph.D., 1996)
- Sarol, Jesus, Jr. "A survey of HIV infection and high risk behaviors among drug users in rehabilitation in the Philippines" (Ph.D., 1996)

THAILAND

- Iamsirithaworn, Sapon, M.D. "Evaluation of sentinel surveillance in Thailand" (Ph.D. in progress)
- Jiraphongsa, Chuleeporn, M.D. "Study on the acceptance of HIV counseling and testing among premarital age population in northern Thailand" (Ph.D., 2000)
- Peerapatanapokin, Wiwat, M.D. "Development of an Asian AIDS epidemic model for predicting the future directions and effectiveness of prevention programs" (Ph.D., 2003)
- Plipat, Tanarak, M.D. "Cost effectiveness of antiretroviral drug therapy to reduce mother to infant HIV transmission in Thailand" (Ph.D. in progress)
- Prempee, Preecha, M.D. "The adequacy of treatment for sexually transmitted disease (STD) patients who obtain medication from pharmacies compared to government and private clinics in Chiang Saen District, Chiang Rai Province, Thailand" (Ph.D., 2003)
- Silarug, Narumol, M.D. "The sensitivity and specificity of urine tests for HIV in Thailand" (M.S., 1991)
- Teeraratkul, Achara, M.D. "Early diagnosis of HIV infection of infants born to HIV-infected mothers: Comparison of immunoglobulin A antibodies with the PCP and R24 antigen assays, Bangkok, Thailand" (M.S., 1994)
- Thaikruea, Lakkana, M.D. "Will using the saliva test for HIV infection increase partner compliance at anonymous testing sites in STD clinics, Thailand?" (M.S., 1995)

VIETNAM

- Bui, Thang Duc, M.D. "Survey on sexual behavior, knowledge and attitudes related to STD/HIV infections among villagers in Laocai province of Vietnam" (M.S., 1999)
- Dinh, Ha Thu, M.D. "HIV prevalence in pregnant women in Hai Phong, Vietnam: factors associated with reluctance to take the HIV test and failure to return for test results" (M.S., 2004)
- Duong, Thanh Cong "Sexual risk and bridging behaviors among young people in Hai Phong, Vietnam" (M.S. in progress)
- Nguyen, Duong "Prevalence and characteristics of drug users in Halong, Vietnam" (M.S. in progress)
- Nguyen, Tuan Anh "Study on HIV-1 and hepatitis C seroprevalence, and predictors of HIV risk-associated behaviors among drug users 15–30 years old" (M.S., 2000)
- Tran, Trung Nam, M.D. "Identifying HIV transmission from injecting drug users to commercial sex workers in Hanoi, Vietnam" (Ph.D., 2004)

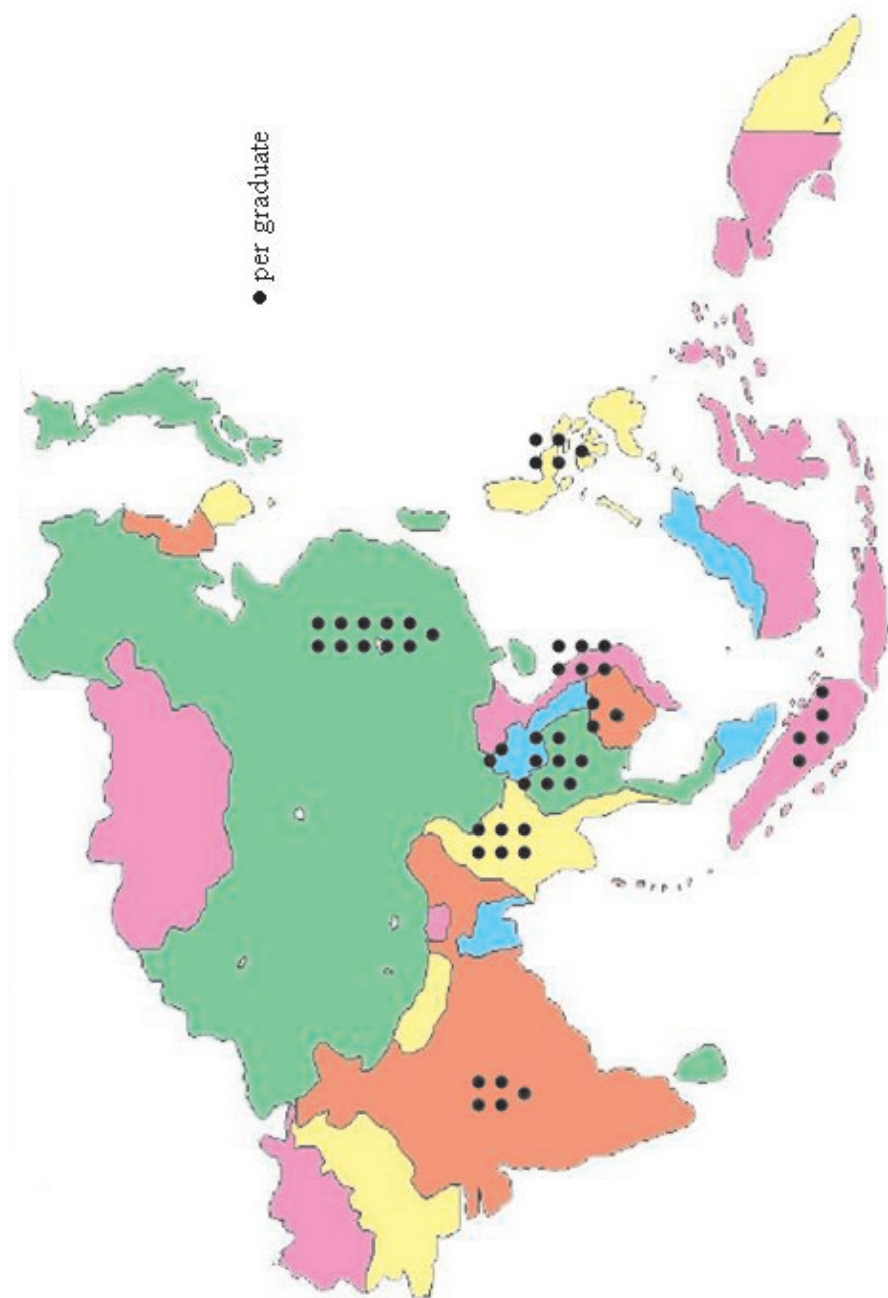


FIGURE 1. Home countries of UCLA Fogarty graduates.

HIV/AIDS in Asia: Introduction

Roger Detels

The objective of this special issue of *AIDS Education and Prevention* is to familiarize interested health professionals with the history and the nature of the HIV/AIDS epidemic in Asia, Southeast Asia, and South Asia, including the intervention approaches that have been used and opinions on the future of the epidemic in these countries. We have been fortunate to obtain articles from leading experts in HIV/AIDS in each of the countries represented in this special issue. This introduction provides an overview of the epidemic in the region and analyzes key factors in confronting the epidemic successfully in Asia.

Although there were sporadic reports of HIV-infected individuals in many of the Asian countries prior to 1988–1989, most were men who have sex with men returning from the United States, Europe, or Australia or were recipients of contaminated factor VIII from the United States. In 1988–1989, however, there was an explosive epidemic of injection drug use in the countries bordering the infamous Golden Triangle. HIV entered into the injection-drug-using population, and by 1989 high proportions of injection drug users (IDUs) in Thailand, Myanmar, southern Yunnan, and northeast India were found to be infected (Crofts, Reid, & Deany, 1988; Ma et al., 1990; Phoolcharoen, Ungchusak, Sittitrai, & Brown, 1998; Sarker et al., 1993; Sarker, et al., 1994; Zhang, et al., 1991; Zheng et al., 1994). The Thais implemented a sentinel surveillance program in 1989, which then documented the spread of HIV/AIDS from the IDU population into the commercial sex population from which it spread to the majority heterosexual population.

In many of the countries of Southeast Asia and Asia, men are expected to have sex with multiple partners both prior to and after marriage, whereas women are expected to have only one lifetime sexual partner, their husband. To accommodate this disparity, there are many commercial sex workers (CSWs). In Thailand and Cambodia, the majority of CSWs work in commercial establishments, whereas in the other countries of the area CSWs include indirect sex workers working in bars, restaurants, and barber shops, as well as street-walking and establishment-based direct sex workers. Young IDUs tend to be more sexually active than non-drug users, and to have sex with CSWs, infecting them and promoting the spread to the general heterosexual population (Nguyen, Hoang, Pham, & Detels, 2001; Wu, et al., 1997).

Even in the most severely affected countries in the region—Thailand, Cambodia, and Myanmar—the prevalence of HIV in the sexually active adult population has not exceeded 2%. The sexual mixing pattern in Asia, in which males have multiple partners but only a small proportion of females do, would seem to be a particularly efficient pattern for rapid spread of HIV, with the CSWs acting as a continuing reservoir

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of infection for the men. Over 90% of CSWs in Thailand become infected within 1 year of initiating commercial sex. However, this pattern of sexual mixing appears not to be as efficient for spreading HIV as the mixing pattern in many of the African nations, in which both males and females have multiple partners, and prevalence rates among adults are as high as 30% or more (UNAIDS, 2003).

There are several countries in Asia that seem to have escaped a serious epidemic. These include the Philippines, Laos, Korea, and Japan. The reasons that they have avoided serious HIV epidemics are not clear. The Philippines has relatively few drug users, and few of them inject and share injection equipment. Studies of CSWs in the Philippines and Laos have indicated that the average commercial sex worker has less than one client per day, compared with three or more per day in Thailand and Cambodia (M. Borja, personal communication, 1998; Phimphachanh & Sayabounthavong, this issue). This low level of sexual mixing may be below the threshold for the epidemic to take off. It is important to realize, however, that rather than preventing the epidemic, the low level of sexual mixing may only delay the onset of a major epidemic. Indonesia also reported low rates of HIV, except in isolated ports in Irian Jaya. Then in the late 1990s, there was an explosive epidemic of HIV in IDUs in urban centers that has rapidly spread to CSWs. Thus, countries currently enjoying a very low rate of HIV need to be vigilant to avoid the fate of Indonesia.

There is particular concern about the epidemics in India, Indonesia, and China. Although the overall prevalence rate among the adult population is still low, the three countries combined contain almost half of the world's population. This is particularly worrisome because the rates of spread of the epidemic in India, China, and Indonesia are among the highest in the world (UNAIDS, 2003). The situations in India, China, and Indonesia are, however, different. Parts of India are experiencing high rates of HIV. The rates among CSWs in the Mumbai/Pune and Chennai areas are very high (Bollinger et al., 1997; Gangakhedkar et al., 1997; Shepherd et al., 2003). In the northeast states, the rates are high among IDUs but are increasing in sex workers and the heterosexual population (Panda et al., 1996; Sarker et al., 1993; Sarker et al., 1995; Zheng et al., 1994). In China there are high rates of HIV among IDUs, particularly in southern Yunnan, Xinjiang, Guangxi, and Guandong. China also experienced an epidemic among plasma donors in the poor rural areas of the central provinces (Wu, Liu, & Detels, 1995; Wu, Rou, & Detels, 2001). Although a safe blood supply has been secured in the urban areas, there are still problems with safe collection and use of blood in the rural areas. There is now also evidence of spread to CSWs (Ding et al., 2004; Ministry of Health and NCAIDS, 2001). Given the rapidly changing sexual behavior of the Chinese, this is a cause for concern. (Detels et al., 2003; Liu et al., 1998). In Indonesia, as mentioned above, the epidemic began slowly, but once it involved the IDU population, the rate of spread increased and involved the commercial sex industry. In India the earliest cases appeared in the urban areas, but in China the earliest cases and most of the new cases are occurring in the rural areas. This rural pattern presents a particular problem for control of HIV spread and provision, and effective clinical management of cases.

The molecular epidemiology of HIV spread in Asia is interesting and provides clues about the routes of spread of the epidemic. Initially, in many of the countries of Asia, the initial clade was the Thai variant of clade B (Nerurkar et al., 1997; Weniger et al., 1991). This clade was particularly prevalent among IDUs. The initial cases in CSWs in Thailand and other areas, however, were clade E. Gradually in the countries of Southeast Asia, including Thailand, Cambodia, and Vietnam, clade E has taken

over, even among IDUs (Nerurkar et al., 1996). Clade C, originally found primarily in India and Africa, is now spreading to northeast India, Myanmar, and Thailand (Panda et al., 1996). China appears to have many different clades (McCutchan et al., 2002; Piyasirisilp et al., 2000; Yu, Chen, Shao, Beyrer, & Lai, 1998).

A key to slowing the epidemic and providing treatment will be the reduction of stigmatization. The majority of HIV-infected individuals in Asia do not know that they are infected. Thus, they continue to infect their injecting and sexual partners. They are reluctant to be tested, because the mere act of being tested identifies them as being socially “undesirable” and puts them at risk for being discovered to be infected, which may cause them to be isolated from their communities and even rejected by their families. Without testing, they will be unlikely to reduce their risk behavior and to seek treatment. As a result, the epidemic continues. For this reason, a major effort must be made to reduce stigmatization and promote empathy for members of risk groups and persons with HIV/AIDS.

Many of the countries of Asia have made the commitment to provide effective treatment for HIV/AIDS patients. There are many barriers to accomplishing this task. The cost of antiretroviral drugs was an initial problem, but costs are coming down, and several of the countries in the area are now producing the drugs themselves. A more serious problem is the need to develop an infrastructure for identifying HIV-infected individuals in need of treatment, effective delivery of the drugs, and monitoring of the patients’ need for and response to therapy. Clinical management of patients in rural areas will be particularly difficult.

Recently a disturbing trend has been observed in the region. For many years, almost all IDUs were men. However, recently in Vietnam and China, the proportion of IDUs who are women has risen to as high as 15-30%. In Vietnam, as many as 15-20% of CSWs are injecting, and many of them are HIV-positive (Tran, Detels, Hien, Long, & Nga, in press a; Tran, Detels, Hien, Long, & Nga, in press b). According to a recent study in Hanoi, the CSWs are at higher risk of HIV infection from their injecting rather than from their sexual partners (Nguyen et al., 2001; Nguyen, Linden, Nguyen, John, & Ha, 2000; Nguyen, Vo, Nguyen, Truong, & Ha, 1998; Tran et al., in press a). The existence of two sources of HIV infection among CSWs will promote more rapid spread to their clients and the general populations of heterosexuals in these countries.

Two countries in the region appear to have been successful at slowing the epidemic and reducing the prevalence of HIV: Thailand and Cambodia (Phoolcharoen & Detels, 2002; Phoolcharoen, Ungchusak, Sittitrai, & Brown, 1998; Saphonn et al., 2004). In both countries the major focus of sexual activities was commercial establishments. Thus, the government targeted the establishment owners, making them responsible for 100% condom use by clients in their establishments, which is a considerably more efficient strategy than trying to identify individual CSWs and modifying their behavior. In the societies of the region, women have little power and are unlikely to be able to convince reluctant clients to use condoms. The success of Thailand and Cambodia strongly suggests that regulating commercial sex is likely to have a significantly greater impact on slowing the epidemic than trying to suppress it. In most countries of the region, attempts to suppress commercial sex have driven the trade underground, making it difficult to deliver effective interventions. Furthermore, these efforts have often fostered corruption on the part of the officials given the responsibility for eliminating the trade.

The ability of Cambodia and Thailand to slow the epidemic also depended on a number of other factors. An essential factor was the strong commitment of the gov-

ernments of these two countries. Although both societies were traditionally reluctant to discuss sex, the government implemented a widespread health education campaign, including the schools and the media, which played a key role in informing the public and changing attitudes toward discussion of sex and reducing stigmatization. A second factor was implementing a multisectoral response. The governments of these two countries involved not just the Ministries of Public Health, but all of the relevant agencies in the campaign against HIV. A third factor was the active involvement of and cooperation with nongovernmental organizations (NGOs) in prevention/intervention. Rather than mandate change on the part of reluctant segments of the society, public health professionals worked to achieve a consensus. This strategy resulted in the active participation of the key players in the epidemic rather than reluctant foot-dragging.

Every country of the region has now accepted the threat of HIV, but the majority of countries have not yet been successful in preventing further spread. The examples of Thailand and Cambodia will be useful for developing effective interventions, but the cultural characteristics and the character of the epidemic in the country will determine the most effective strategies. Nonetheless, it is clear that there must be a strong government commitment at the highest levels, a multisectoral response, community commitment, and involvement and partnering with NGOs that often have the closest relations with the target populations.

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The HIV/AIDS Epidemic in China: History, Current Strategies and Future Challenges

Zunyou Wu, Keming Rou, and Haixia Cui

This article reviews the epidemic of HIV infection and AIDS, the Chinese national policy development in response to the epidemic, and disparities between policies and the need for AIDS prevention in China. The HIV epidemic in China has gone through three phases, and it is now at the rapid expansion phase. Since 1988, HIV/AIDS has been addressed from a legal perspective, but in the early stages laws and regulations actually hindered HIV control efforts. Since 1995 efforts have been made to improve policy decisions. Two major strategic plans were issued in 1998 and 2001, with increased government funding for implementation. Although the challenges facing HIV/AIDS control in China are many, the Chinese government is making a stronger commitment for implementing effective AIDS control measures in the country.

There is a Chinese proverb that says “a good beginning is half the success.” Unfortunately, almost 2 decades have passed since HIV and AIDS entered into China in 1985, and the epidemic continues to spread at an alarming rate (China Ministry of Health and UN Theme Group on HIV/AIDS in China, 2003; Ma et al., 1990; Shen, 1996; Sun, Nan, & Guo, 1994; Wang, 1998; Wu, 1999a, 2000; Zeng et al., 1988; Zheng, Zhu, Yang, & Zhang, 1989). The number of annual reported HIV infections in China increased steadily at an average rate of 30% every year between 1995 and 2000. In 2001 the increase in the reported number of HIV cases was 58%, almost twice as much as in previous years. During the subsequent years, annual HIV infection rates increased further and reached 122% in the year 2003 (China Ministry of Health & UN Theme Group on HIV/AIDS in China, 2003; Chinese Center for Disease Control and Prevention [CDC], 2004). In 2003 an assessment was carried out by the Chinese Center for Disease Control and Prevention and National Center for AIDS/STD Control and Prevention (NCAIDS), with support from the World Health Organization (WHO), the Joint United Nations Program on HIV/AIDS, and the U.S. CDC. It was estimated that 840,000 people in China are living with HIV, and among them, 80,000 have developed AIDS (China Ministry of Health and UN Theme Group on HIV/AIDS in China, 2003). Although the overall rate of HIV infection is less than .1%, the epidemic has spread to 31 provinces, municipalities, and autonomous regions, and the

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infection rates in some subgroups such as injection drug users (IDUs) and former plasma donors in rural areas are alarmingly high. The number of reported HIV infections is on the increase as are cases of AIDS-specific morbidity and mortality. Inadequate surveillance of HIV/AIDS makes it difficult to assess the course and the full magnitude of the epidemic in China (China Ministry of Health and UN Theme Group on HIV/AIDS in China, 2003).

The development of the HIV/AIDS epidemic in a country depends on how the government responds to the epidemic. This article reviews the character spectrum of the epidemic in China, the government response, the development of policy, and the remaining challenges in dealing with HIV/AIDS in China.

EPIDEMICS OF HIV/AIDS IN CHINA

UNIQUE EPIDEMIC PATTERN

A unique pattern of the HIV epidemic has been observed in China. The first HIV infection was probably introduced into China in 1985 (Zeng et al., 1988; Zheng et al., 1989), and the first outbreak of HIV infection was observed among rural IDUs on the border areas between China and Myanmar in 1989 (Ma et al., 1990). Thailand reported both the first HIV infection and the first outbreak of HIV among IDUs about 1 year earlier than China (Wongkhomthong, Kaime-Atterhog, & Ono, 1995); however, China has experienced a very different pattern of HIV spread than that of Thailand. What makes the epidemic in China different is that the epidemic of HIV among IDUs began in the rural areas and then spread to urban areas. In addition, commercial plasma donors have contributed to the epidemic.

The epidemic began among IDUs in areas of Yunnan Province bordering Myanmar, then spread to IDUs in nearby cities (Cheng et al., 1997; Zhang, Chen, Jia, & Zhang, 1999). It further spread to IDU communities residing along the major drug trafficking roads to Guangxi, Xinjiang, Sichuan, Guangdong, and other provinces (China Ministry of Health and NCAIDS, 2001; Lin et al., 1999; Wang, 1998; Wu, 1999a, 1999b, 2000; Yin, 1998; Zheng, 1999, 2000). The infection soon spread to the sexual partners of IDUs and their infants. From 1993 to 1996, outbreaks of HIV infection occurred among commercial plasma donors in rural communities in several provinces (Liu et al., 2001; USEST, 2001; Wang et al., 2001; Wu, Liu, & Detels, 1995; Wu, Rou, & Detels, 2001; Yan et al., 2000; Zheng et al., 2000). This stems from the practice of drawing blood from impoverished rural people, harvesting the plasma, then reinfusing pooled, packed red blood cells into the donors. In some villages in afflicted areas, more than 70% of the population aged 19 to 49 years were infected with HIV (Liu et al., 2000). Although HIV infection has been reported from all 31 provinces, there is a considerable variation in the transmission routes and infection rates. About 80% of China's estimated 840,000 HIV-infected individuals reside in rural areas (China Ministry of Health, NCAIDS, & Collaboration Group for National HIV Sentinel Surveillance Program, 2000), complicating accurate surveillance and effective intervention.

THREE PHASES OF THE EPIDEMIC

China started HIV/AIDS surveillance in 1986, and official notification of HIV infection became a legal requirement in 1989. In 1995, supported by the WHO, the China Ministry of Health, and NCAIDS established 42 sentinel surveillance sites in 23 provinces. By 2002 the number of sites had increased to 158, encompassing 31 provinces. Based on the national surveillance data, the epidemic of HIV/AIDS has gone

through three different phases: the introduction phase (1985-1989), the spreading phase (1990-1994), and the expansion phase (1995-present) (China Ministry of Health and UN Theme Group on HIV/AIDS in China, 2003; Wang, 1998). Until 1995, the HIV epidemic was largely confined to Yunnan Province in Southern China (Shen, 1996; Sun et al., 1994; Wang, 1998). In 1995 the number of individuals identified with HIV infection in China equaled the cumulative total of those between 1985 and 1994. The number of infections doubled again in 1996 (Shen, 1996; Wang, 1998). The upsurge in HIV infection is particularly disturbing because the majority of the new infections have been in other parts of China and not in Yunnan, representing the spread to other groups, including commercial sex workers and commercial plasma donors (Shen, 1996; Wang, 1998; Wu, 1999a, 1999b). From 1995 to 2000, the average increase in reported HIV infection was about 30% annually. Actually there are five different HIV epidemics in China.

THE FIVE DIFFERENT EPIDEMICS

Injection Drug Users. The first outbreak in China was reported among IDUs in Ruili, Yunnan Province, in 1989 (Ma et al., 1990, Zhang et al., 1991). The epidemic has spread rapidly among IDUs in southern Yunnan, Xinjiang, Guangxi, and Sichuan since 1995 (Wang, 1998). The proportion of HIV/AIDS cases due to injection drug use occurring in the provinces (autonomous regions) of Guangxi, Yunnan, and Xinjiang was 73.1% in 1996, 80.9% in 1997, and 79.3% in 1998 (China Ministry of Health and NCAIDS, 2001). The provinces and autonomous regions hit hardest by the HIV/AIDS epidemic among IDUs include Yunnan, Xinjiang, Guangxi, Guangdong, Sichuan, and Jiangxi provinces. The spread of HIV among IDUs in the different provinces of China is shown in Table 1. A study by Wu et al. (1996b) indicated that the incidence of new IDUs remains high, ensuring a constant supply of susceptible subjects, and documented that IDUs have more sexual contacts than non-IDUs. Although the proportion of reported HIV among IDUs dropped to 43% in 2003 (Chinese CDC, 2004), it is expected that high levels of transmission will continue within the IDU population, and that HIV spread from the IDU population to other groups will increase.

Commercial Plasma Donors. Although attention has mainly focused on the HIV epidemic among IDUs in Yunnan, China (Sun et al., 1994; Wu, 1999a, 1999b; Wu et al., 1996a, 1996b; Wu et al., 1997; Yin, 1998), the role of unsafe plasma donation practices was recognized more than 9 years ago (Wu, Liu, & Detels, 1995). A survey of 1,517 former commercial plasma donors revealed that 12.5% were HIV-positive, with the number of donations directly relating to the probability of infection (Wu et al., 2001). From the late 1980s to the early 1990s, a vast number of small-scale plasma collection stations were set up in rural areas by blood product companies. Some plasma donors were documented to have donated plasma more than 10 times in 1 week. Procedures varied, but in all cases the blood was taken for plasma, and the blood cells were returned along with a saline solution. In most cases, the tubes were reused. Sometimes pooling of red cells from different subjects occurred, resulting in red cells from other subjects being infused into other plasma donors. Contamination during the collection and reinfusion procedures was the major cause of HIV transmission among this subgroup. HIV infection among former commercial plasma donors was initially reported in Henan Province, but more serious problems were reported later from Shanxi, Shaanxi, Hebei, Gansu, and Hubei Provinces (USEST, 2001).

TABLE 1. Provinces and Years When HIV Was First Reported among Injection Drug Users

Year	Provinces
1989	Yunnan
1995	Sichuan, Xinjiang
1996	Guangdong, Guangxi, Beijing, Shanghai, Guizhou
1997	Inner Mongolia, Liaoning, Zhejiang, Gansu, Chongqing
1998	Hunan, Qinghai, Jiangsu, Tianjin, Shanxi, Fujian, Jiangxi
1999	Hebei, Shandong, Hubei, Hainan, Ningxia
2000	Shaanxi
2001	Tibet, Heilongjiang, Henan
2002	Jilin, Anhui

Note. Data from China HIV/AIDS case report.

Heterosexual Transmission. The national HIV sentinel surveillance results showed that the prevalence rate among sex workers had increased from 0.02% in 1995 to 2% in 2000 (Ministry of Health and NCAIDS, 2001). Similarly, among 36 sentinel sites for sexually transmitted disease (STD) patients, 16 sites recorded HIV-infected persons. The sentinel surveillance results have also identified HIV infection among low-risk women attending antenatal clinics (China Ministry of Health & UN Theme Group on HIV/AIDS in China, 2003).

Mother-to-Child Transmission. Since the first case of mother-to-child transmission was reported in 1995, the proportion of mother-to-child transmission has increased each year. The case report data show that the proportion of mother-to-child transmission increased from 0.1% in 1997 to 0.4% in 2002 to 0.5% in 2003 (China Ministry of Health and UN Theme Group on HIV/AIDS in China, 2003; Chinese CDC, 2004). In Yunnan and Xinjiang, the HIV prevalence among pregnant women in certain areas has reached 1.3% and 1.2%, respectively, similar to the levels of high prevalence in several neighboring countries (China Ministry of Health and UN Theme Group on HIV/AIDS in China, 2003).

Homosexual Transmission. Although the number of men who have sex with men (MSM) is believed to be large, not much is known about this community. A small survey suggested that the HIV infection rate among a subgroup had reached 17.7%. Since the national HIV sentinel surveillance program was officially set up in 1995, MSM has been the only risk group that has not been successfully recruited for HIV surveillance.

In summary, although sharing injecting equipment among IDUs remains the main mode of transmission, the available data suggest that the HIV/AIDS epidemic is spreading beyond IDUs. The HIV epidemic is established in China and is spreading fast from the core groups to the general population. Based on experiences elsewhere in Asia, it is expected that heterosexual transmission will become the dominant mode of transmission.

POLICY DEVELOPMENT AND RESPONSE TO AIDS

EARLY STAGES

After the AIDS epidemic was reported in the Western world, the Chinese government assumed that the epidemic could be prevented in China by banning HIV-infected persons from entering the country. Based on this assumption, legislation was imple-

mented in *Regulations Concerning the Monitoring and Control of AIDS* in 1988 (China Ministry of Health et al., 1988). The regulation stipulated that all foreigners infected with HIV or who had AIDS would not be allowed entry into China. The Border and Quarantine Law of the People's Republic of China stated that those infected with HIV would be denied entry into China.

The same rule was applied to some extent between the provinces. When anyone was found to be HIV-positive, he or she was sent back to his or her province of residence. In 1996 a large number of HIV-infected migrants were identified while they were donating blood in Guangdong Province. They were all sent back to their home provinces by the health authorities and armed policemen. It has since been recognized that the send-back policy was not effective.

The Law of Infectious Diseases Prevention and Control was passed by the People's Representative Committee in 1989 (People's Congress, 1989a), and the *Methods of Implementation of the Law of Infectious Diseases Prevention and Control* was issued by the Ministry of Health in October 1991 (China Ministry of Health, 1991). These declared AIDS to be a notifiable disease. The law stated that diagnosed AIDS cases must be reported to the local health authority within 6 hours in cities and 12 hours in the countryside. Article 24 under Chapter 4 of the Law of Infectious Diseases Prevention and Control states that AIDS patients must be quarantined, and the period for quarantine depends on the results of a medical examination.

A few articles in the law were hard to follow in the practice of AIDS control programs, because the law was passed before the epidemic of HIV/AIDS took hold in China. Sporadic reports of HIV infection and AIDS cases did generate awareness of AIDS among some lawmakers, but their knowledge of the real implications of the HIV/AIDS epidemic was limited. Therefore, they did not know how to take appropriate action from a legal point of view.

Obviously, it is neither feasible nor necessary to report AIDS cases within 6 hours in cities and 12 hours in the countryside. AIDS is not an acute infectious disease. It does not cause an outbreak unless contaminated blood or blood products penetrate another person's body or are transmitted through unprotected sex. Furthermore, existing communication facilities, particularly in rural areas, are inadequate for the purpose of immediate reporting. In addition, testing for HIV antibodies and diagnosis of clinical AIDS cases are not readily available at the prefectural and county levels. The most important issue in reporting is confidentiality or anonymity. Because discrimination and stigmatization are often associated with AIDS, releasing the identities of infected individuals caused serious problems for those individuals and discouraged people from seeking HIV testing or health care at established health facilities.

Quarantine of AIDS cases is not feasible and created problems for the hospitals caring for AIDS patients. The law has been rather ambiguous on quarantine procedures. The period for quarantine depends on the results of a medical examination, and because the majority of the examining physicians recommended universal precautions rather than quarantine when dealing with HIV-infected individuals, only a few HIV-infected persons were quarantined.

The process of lawmaking is complicated. Lawmakers do not understand the complexity of AIDS issues, and people who have sound knowledge of AIDS have not had the opportunity to be involved in the lawmaking processes. To protect the rights of mothers and infants, the Law for Protection of Mother and Infant was issued in June 1995 (People's Congress, 1995). Article 8 of this law states that the premarital health examination must include testing for specific contagious diseases such as AIDS,

gonorrhea, syphilis, leprosy, and other infectious diseases that affect marriage and/or giving birth. Article 9 further states that individuals diagnosed with these diseases should delay their marriage until they are not contagious. The revised Law of Marriage also states in Article 6 that individuals may not marry if they suffer from leprosy or other contagious diseases that are considered inappropriate for marriage until they are cured (People's Congress, 1989b). Thus, based on these laws, AIDS patients may not marry. Neither the Law of Marriage nor the Law for Protection of Mother and Infant stipulate anything about HIV-infected individuals. In some large cities, when marriage involves one partner who is from another country, an HIV antibody test must be undertaken in the premarital health examination. If the foreigner or the Chinese or both are HIV-positive, they may not marry.

Although the role of condoms in HIV/AIDS prevention is internationally acknowledged, they cannot be advertised on national television or in the printed mass media. However, condoms can be easily obtained at large department stores, but they may not be sold to patients at STD clinics. The reason is that condoms are taxable but drugs are not. That policy has now been changed in Kunming, Yunnan Province, but more work needs to be done to remove the ban on distributing condoms in STD clinics throughout China.

The law requires reporting the name and address of a person with a notifiable disease. This is applicable to people with STDs and HIV/AIDS. This drives most STD patients underground, and they receive treatment at unlicensed private clinics or pharmacies or from traditional healers. As a result, STDs are not adequately treated, resulting in further spread and the development of multidrug-resistant pathogens. To address this issue, anonymous STD treatment was initiated by a local regulation in Shanghai in 1995. The new strategy has resulted in an increased number of STD patients attending public clinics, with a consequent reduction in the prevalence rate of STDs. With assistance from the European Union, anonymous STD treatment and the syndromic approach are now being implemented in most large cities. More efforts are needed to promote this strategy at the prefectural and county levels.

A considerable number of HIV-infected persons such as commercial sex workers and repeat drug addicts are categorized as criminals. Because of overcrowded jails and misinformation about HIV/AIDS, HIV-infected prisoners are released if they test positive for HIV. This practice is based on the *Regulation of Jail Management* by the High Court and Ministry of Public Security. Thus, although other prisoners are protected from HIV infection, the general public is not.

HIV infection is known to spread through repeated use of contaminated needles; nonetheless, needle exchange is thought to promote drug use rather than serve as an effective HIV control method. Therefore, government policies discourage implementation of needle exchange programs.

TURNING POINT

In many aspects, the existing laws are impediments to controlling HIV in China. China is in need of appropriate and effective laws that would promote action to control and prevent HIV/AIDS. An example of progress by the government to rectify this situation is the adoption of *Recommendations on Strengthening AIDS Prevention and Control*, with approval from the China State Council and the Ministry of Health in 1995. The document focuses on several issues, but the most relevant one is developing and reviewing laws and regulations and establishing or improving the system for their enforcement.

Another effort to correct this situation was initiated with the implementation of the Workshop on Control of HIV/AIDS in China in December 1997, which was attended by Chinese and foreign leaders in HIV/AIDS control. The workshop made a series of recommendations to the Ministry of Health for promoting control of HIV/AIDS in China. A positive step in this process has been the increasing willingness of the government of China to acknowledge the magnitude of the HIV epidemic and its potential for even greater spread. This openness will facilitate prevention and control efforts.

A wide range of issues relevant to the control of HIV/AIDS in China, many of which are very controversial, were discussed in the 1997 workshop. No limitations were placed on the discussions or on the recommendations that were developed covering all the major issues. The success of the workshop will ultimately be measured by the extent to which the recommendations made to the Ministry of Health are considered and implemented.

The state government has also taken many positive steps. To control HIV spread from commercial blood and plasma donation, the Law of Blood Donation was issued in 1997. To mobilize all government departments and sectors to participate in AIDS control programs, the *Responsibilities of Ministries and Departments of State in AIDS Control and Prevention* was issued in 1997. Twenty-one ministries and departments have their own responsibilities in AIDS prevention and control, and activities are coordinated by the state council meeting. Significantly, AIDS is listed in the state government's China 21st Century Agenda.

It is recognized by the China State Council that early investment in AIDS control programs will save lives and resources. It is also recognized that China has limited time to take action to avert an AIDS disaster of the magnitude already confronted in many African countries and in some Asian countries such as Thailand, India, and Cambodia. It should be noted that the monetary input made by state government is very low, considering that China is the world's largest country with one fifth of the world's population. It is proposed that from 1995 on, the Ministry of Finance will allocate at least 15 million CNY (U.S.\$1.8 million) for AIDS control each year.

Education and prevention have been emphasized as priorities for AIDS control since AIDS was first reported in China in 1985. However, in practice, they were not given adequate attention. The support for laboratory and epidemiological research was also low. Furthermore, education and prevention were interpreted by the majority of those involved as mere dissemination of educational folders, pamphlets, and fliers. Few effective educational intervention measures targeting high-risk groups have been implemented. It has now been recognized that education and prevention alone have not been effective. To rectify this situation, the *Principles for STD/AIDS Education and Prevention Messages* was issued in early 1998 jointly by the Ministry of Health, the Ministry of Publicity, the Ministry of Education, the Ministry of Public Security, the Ministry of Justice, the Ministry of Culture and Civilization, the Ministry of Radio, Film and Television Administration, the National Family Planning Committee, and the Ministry of Information and Publication for media reporting news and events on STD/AIDS. The distinction between long-term need and immediate need was made clear. The long-term need to eradicate commercial sex and drug abuse is unlikely to occur in the near future; therefore, effective measures to stop HIV spread among IDUs, such as clean needle programs, and among sex workers, such as condom promotion and STD treatment, must be implemented as soon as possible. The principles also say that reporting a condom as evidence of sex work must be banned in all

news reports. The principles encourage dissemination of knowledge in the mass media on the important role of condoms in preventing pregnancy and STDs such as hepatitis B and C, gonorrhea, syphilis, and HIV.

The Chinese government now recognizes the seriousness of the HIV epidemic and the threat it poses to the country's social and economic development, particularly in impoverished rural areas. Therefore, the government has placed a high priority on HIV/AIDS prevention and control. In 1998, an HIV/AIDS coordinating committee chaired by Vice Premier Li Lanqing was established to coordinate and mobilize all government sectors to put forth a national response to the HIV/AIDS epidemic in China. In November 1998 the China State Council issued the *China's Medium- and Long-Term Programme for the Prevention and Control of AIDS (1998-2010)* (China Ministry of Health, State Development Planning Commission, Ministry of Science and Technology, & Ministry of Finance, 1998), which serves as the blueprint for the HIV/AIDS prevention and control strategy in China. Priorities include but are not limited to ensuring a safe blood supply, implementing health education and behavioral interventions, and providing care to HIV/AIDS patients and their families. This plan, however, does not adequately address the most appropriate actions needed in the short term to deal with the seriousness of problems already at hand. Furthermore, no immediate solutions are available to effectively treat patients, due to a lack of funds and expertise.

STRONGER COMMITMENT AND ACTION ARE REQUIRED

Six years have passed since *China's Long - and Medium-Term Programme for HIV/AIDS for the Prevention and Control of AIDS (1998-2010)* (China Ministry of Health et al., 1998) was issued. Since then, not much action has actually taken place. HIV infections, AIDS cases, and AIDS deaths continue to increase. In the spring of 2001, officials from more than 10 major ministries worked together to develop the *China Plan of Action for Containment and Control of HIV/AIDS (2001-2005)* that was issued in May 2001 by the China State Council (China State Council, 2001). The policy paper first highlighted effective strategies for control of HIV, including condom promotion, methadone maintenance, and needle social marketing for IDUs.

A stronger commitment was demonstrated by increased government funds for AIDS control programs and the government's stating that government funding should be the major resource, but that resources should also be obtained through various channels. In 1996 the Ministry of Finance set up a special fund for HIV/AIDS prevention and control. The first contribution was 5 million CNY. Between 1998 and 2000 the contribution increased to 15 million CNY per year. Since 2001 this contribution has further increased to 100 million CNY per year.

In 2001 the State Development and Reform Commission (SDRC) transferred 1.25 billion CNY from national bonds, combined with 1 billion CNY from local governments, to improve the basic construction and equipment of blood banks in mid-western China. In 2002 the SDRC allocated a further 2.9 billion CNY from national bonds to support the capacity-building of the Chinese CDC at the provincial, prefectural, and county levels in midwestern China.

The central government is considering the possibility of providing free antiretroviral (ARV) drugs to AIDS patients who are not covered by health insurance. At the high-level HIV/AIDS meeting of the United Nations General Assembly in September 2003, Executive Vice Minister Gao Qiang declared that China will provide free ARV drugs to impoverished AIDS patients. In cities the government will provide

free ARV drugs to AIDS patients with low incomes, and in the rural areas, free ARV drugs will be provided to farmers. At the same time, the central and local governments will invest more than 10 billion CNY to strengthen the health care system and professional capacities on HIV/AIDS prevention and control.

CHALLENGES

Although a supportive policy environment has developed and funds have increased dramatically for control of AIDS, the Chinese government still faces many challenges in getting the epidemic under control. First, given the population of the country, there is a paucity of trained manpower at all levels, from central to provincial to county to township to villages and communities. This is a major barrier for implementation of effective prevention and care programs.

Second, the stigma surrounding HIV/AIDS provides another barrier for effective programs in China. There are three dimensions of stigma: (a) given limited resources and lack of vision among government officials, it is very difficult to commit sufficient funds for implementing effective programs among high-risk groups; (b) marginalizing high-risk groups makes service staff reluctant to work with them; and (c) stigma from the general public makes it difficult to deliver services to high-risk groups and others who are infected with HIV.

Third, a large number of HIV-infected people have not been tested and thus are not aware of their HIV status. Therefore, they continue to spread HIV to their sexual partners and needle-sharing partners. Among the 840,000 people living with HIV/AIDS in China, fewer than 6% have actually been tested. This leaves more than 94% untested. These untested HIV-infected individuals are the major reservoir of HIV transmission in the population.

Finally, management and evaluation of the prevention and care programs in China itself is a very large challenge, given the enormous size of the country; the variation in patterns of HIV infection among provinces, municipalities, and autonomous regions; and the concentration of HIV-infected persons in rural areas.

Precious time has been wasted in the past. We need to act now collectively to stop the epidemic from spreading further.

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Can the Low HIV Prevalence In Hong Kong Be Maintained?

Michael Kam-tim Chan and Shui-shan Lee

Hong Kong is an area with low HIV prevalence. Public health services provided through the methadone clinics and public sexually transmitted diseases clinics have contributed to the control of HIV in Hong Kong. Nevertheless, surveillance indicates that HIV infections are increasing, especially in young male Chinese. The seropositivity rate of HIV in injection drug users is also increasing. A significant number of sexually transmitted infections, including syphilis and gonorrhoea, continue to occur. Continuing vigilance is required to prevent an increase in HIV infections.

Situated in the Pearl River Delta Region (PRDR) of southern China, Hong Kong is divided into Hong Kong Island, Kowloon Peninsula, and New Territories adjoining mainland China. In 2003 Hong Kong had an estimated midyear population of 6.8 million. Four million people were 15-49 years old. The estimated annual population growth rate is .97 for the 2005-2010 period (Hong Kong, Census and Statistics Department, 2002). All residents are urban dwellers, and the majority are Chinese. There has been increasing traffic between Hong Kong and its neighboring cities in the PRDR after Hong Kong was returned to Beijing in 1997. As a thriving commercial and tourist center between Southeast Asia and southern China, Hong Kong is a potential reservoir for the spread of HIV.

The first HIV case in Hong Kong was reported in 1984. Since then, a cumulative total of 2172 HIV and 650 AIDS cases have been reported through September 2003 (Hong Kong Department of Health, 2003). Hong Kong has so far been regarded as a low HIV prevalence area (World Health Organization, 2002). It was estimated in 1999 that the total number of HIV-infected individuals in the community was less than 3,000 (Chin, 1999), with sexual transmission being the predominant route for HIV spread (Hong Kong Department of Health, 2002). An increasing male-to-male spread has recently been noticed, although heterosexual transmission remains the predominant route (Hong Kong Department of Health, 2002). Although HIV infection from contaminated blood products and perinatal transmission is now a rarity, infec-

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tion in injection drug users (IDUs) has been increasing (Hong Kong Department of Health, 2002). Overall, young male adult Chinese are the group that is most affected (Special Preventive Program, Hong Kong Department of Health, 2002). This study explores the validity of the reported low HIV prevalence in Hong Kong, examines the reasons behind the phenomenon, and speculates on the future pattern of HIV.

THE VALIDITY OF THE LOW HIV PREVALENCE IN HONG KONG

Serosurveillance activities have been conducted by the Hong Kong Department of Health on a regular basis since the mid-1980s (Table 1). The prevalence level is measured in people at high risk; for example, sexually transmitted infection (STI) patients and drug users, on one hand, and the general population (blood donors, etc.), on the other. HIV prevalence in STI patients attending the territory's social hygiene clinics has never risen above .1% (.077% in 2002, 95% confidence interval [CI] = .055-.104%). For drug users attending methadone clinics, the prevalence was less than .5% (.248% in 2002, 95% CI = .119-.456%) (Hong Kong Department of Health, 2002). Understandably, there is always the possibility that those with the highest risk may not have been included in these surveillance studies. Currently, the social hygiene clinics treat about 45,000 patients per year, whereas the daily registration of methadone clinics was about 7,000 in 2003. The large sample size, the voluntary but near universal mode of testing in the social hygiene clinics, and the application of unlinked anonymous screening in the methadone clinics provides for a robust mechanism for public health surveillance. Nevertheless, interpretation is limited by the absence of reliable HIV seroprevalence data in other groups, such as men who have sex with men (MSM), commercial sex workers (CSWs), and the mobile population.

The low prevalence in risk-taking communities is echoed by results of surveillance in the general population without apparent risk. In neonates, the prevalence was .03% in 2000 (CI = .0007-0.1602%), a figure identical to that obtained through a new universal antenatal HIV-testing program introduced in 2001 (Scientific Committee on AIDS of Hong Kong Advisory Council on AIDS, 2003a). In healthy blood donors, it was less than .01% (.002% in 2002, CI = .0003-.0045%) (Hong Kong Department of Health, 2002). In the absence of any evidence of an explosive spread of HIV, it is reasonable to infer that the overall prevalence in adult men in Hong Kong is less than .1%, while in women, it is probably even lower (Table 2).

THE LEGACY OF LOW HIV PREVALENCE IN HONG KONG

We may then ask why Hong Kong has had a low HIV prevalence over the past decades, despite the rise in neighboring cities and countries. The answer is complex, but there are probably two main reasons. First, the level of HIV risk behavior, the primary driving force of the transmission, has been relatively low. Behavioral studies in 2002 indicated that the proportion of drug users who inject was 80% in the street survey, 20% in methadone users, and 20% in those attending inpatient drug treatment (Hong Kong Department of Health, 2002). The corresponding rate of needle sharing was 20%, 10%, and 5%, respectively in 2001 (Hong Kong Department of Health, 2002). Eighty percent of heterosexual men in the Hong Kong Department of Health's AIDS Counselling Service reported always or usually using condoms with CSWs. In the Social Hygiene Service, 60% of heterosexual men reported always or usually using condoms with CSWs (Choi & Lee, 2000; Hong Kong Department of Health, 2002). It can

TABLE 1. A System Layout of Serosurveillance Studies in Hong Kong Since 1985

	Setting	System	Since	Sample size	Data available in 2002
A. Community with predisposing risk factors					
STD patients	Social hygiene clinics	Voluntary testing offered to clients	1985	30,000–40,000/year	Yes
Drug users (1)	Methodone clinics	UAS using urine samples	1992	2,000–4,000/year	Yes
Drug users (2)	All rehabilitation services	Voluntary testing	1985	300–1,000/year	Yes
Drug users (3)	Street addicts	Voluntary on unlinked saliva samples	1993 (to 1997)	200–500/year	No
B. Community without risk factors					
Blood donors	Hong Kong Red Cross blood transfusion service	A requirement for all potential donors	1985	1500,00–200,000/ year	Yes
Antenatal women	All maternal and child health centers and public hospitals	Universal voluntary testing	Sept, 2001	About 40,000/year	Yes
Neonates ^a	Testing of cord blood from delivering women	UAS on blood samples	1990 (to 2000)	4,000/year	No
Civil servants	Pre-employment health check	UAS on blood samples	1991 once	1,553	No
C. Community with undefined risk					
TB patients (1)	TB and Chest clinic of DH	UAS	1990	1,000/year	Yes
TB patients (2)	TB and Chest clinic of DH	Voluntary testing	1993	2,000–3,500/year	Yes
Prisoners	Penal institutions	On blood/urine samples	1992	1,000–2,000/year	Yes

Note. UAS – unlinked anonymous screening, DH – Data from Hong Kong Department of Health (2002, p. 42). ^aReplaced by universal voluntary testing of antenatal women since September 2001.

TABLE 2. The Distribution of the Reported HIV/AIDS Cases by Exposure Categories and HIV Seropositivity Rates in Different Groups in Hong Kong From 1997 to 2002

Exposure Categories	1997	1998	1999	2000	2001	2002
Heterosexual	117 (HIV) 44 (AIDS)	132 50	127 44	115 56	125 48	145 37
Homosexual/Bisexual	43 13	22 7	43 9	26 2	43 7	56 10
Injection drug users	2 1	1 0	6 2	10 1	11 1	10 10
Blood contact	1 1	0 1	1 2	0 1	0 0	0 0
Perinatal	0 0	2 1	4 1	2 1	2 0	1 0
Undetermined	18 5	32 4	32 4	30 5	32 3	48 5
HIV Seroprevalence Rates						
A. Groups without risk-taking behavior/Prevalence in % (95% CI in %)						
1. Antenatal women ^a	0	.03 (.0008–.1838)	.03 (.0008–.1783)	.03 (.0007–.1602)	.05 (.0217–.1112)	.02 (.0082–.0376)
2. Blood donors ^b	.004 (.0015–.0077)	.003 (.0014–.0072)	.004 (.0015–.0076)	.005 (.0022–.0090)	.002 (.0003–.0045)	.002 (.0003–.0045)
B. Groups with high-risk-taking behavior/Prevalence in % (95% CI in %)						
1. Methadone attendees ^c	0	.211 (.078–.460)	.112 (.023–.328)	.274 (.132–.505)	.105 (.029–.269)	.248 (.119–.456)
2. Social Hygiene Service attendees ^d	.070 (.046–.101)	.059 (.039–.085)	.060 (.041–.085)	.039 (.024–.060)	.061 (.041–.086)	.077 (.055–.104)

Note. Seropositivity rates of HIV in IDUs is increasing. In 1997 the seropositivity rate was less than .1%, but the rate increased to .25% in 2002 in methadone clinic attendants, using UAS. This suggested that HIV infection is on the rise. Other observations that suggested an impending rise of HIV prevalence in Hong Kong included the following. First, a significant number of STIs continues to occur. At the Social Hygiene Service, the number of syphilis cases recorded was 1053 in 1998 and 1,061 in 2002; the cases of gonorrhea recorded was 2,775 in 1998 and 3,284 in 2002. Second, there has been a high rate human mobility in the last years. Individual travelers who will hold short-term permits to visit Hong Kong are expected to be up to 9 million per year under the Closer Economic Partnership and Arrangement and Individual Visits Scheme. ^aUnlinked anonymous screening (UAS) until 2000; universal voluntary testing since 2001. ^bMandatory screening of all donor blood. ^cUnlinked anonymous screening. ^dVoluntary testing offered to all clients.

be argued that the level of needle-sharing behavior and unsafe sexual practices are not intensive enough to ignite an explosive epidemic in the population, although the virus has already been introduced into the community (Red Ribbon Center, 2000). However, pockets of high-risk groups may exist, a possibility that should not be ignored.

Second, the containment of the local HIV epidemic has probably resulted from the broad coverage of some preexisting public health programs that were already in operation before the start of the HIV epidemic. The Methadone Treatment Program (MTP) and the Social Hygiene Service are two examples of such initiatives. MTP was launched in 1976. The network of some 20 methadone clinics has a coverage rate of up to 60% of Hong Kong's registered drug user population, estimated to be 18,000 in 2002 (Narcotics Division, Security Bureau, Hong Kong, 2003). The methadone clinics distributed throughout Hong Kong provide voluntary, easy-to-access, low-cost, effective, and sustainable opiate substitutions for drug users (Red Ribbon Center, 2003). The extended clinic working hours and walk-in service preclude a waiting list. Currently, up to 98% of the clinic attendees are on methadone maintenance therapy, and 2% on methadone detoxification (Red Ribbon Center, 2003). Local studies confirmed that adherence to methadone treatment is associated with a lower rate of injection among drug users (Wong, Lee, Lim, & Low, 2003). In addition to offering treatment, the methadone clinics provide HIV health education and risk reduction counselling, condoms, and referral service for HIV-infected individuals (Red Ribbon Center, 2003).

Similar to the MTP, but targeting a different risk behavior, the Social Hygiene Service of the Department of Health has been able to provide voluntary, free, and effective STI treatment since the early 1970s. STIs causing genital ulcers and discharge act as cofactors in facilitating HIV transmission (Cohen, 1998; Wasserheit, 1992). Controlling STIs has become an effective strategy in reducing HIV infections worldwide (Grosskurth et al., 1995). Currently, it is estimated that the nine social hygiene clinics in the public service manage approximately 25% of all STI patients in the community (Lo & Lee, 1998). Voluntary HIV testing, information, and free condom provision are offered to all clients attending the clinics. The clinics also carry out contact tracing and partner notification so that treatment can be offered to contacts if indicated. The social hygiene clinics and MTP, through their wide coverage, have played key roles in protecting people at elevated risk for contracting HIV.

Safeguarding blood and blood products played an important part in avoiding the spread of HIV during the early stage of the global epidemic. The Hong Kong Red Cross blood transfusion service has been screening every unit of blood donated for HIV since 1985. Since the system was introduced, there has been only one case of HIV transmission, which occurred in 1997 (Special Preventive Program, Hong Kong Department of Health, 2001).

The use of contaminated blood products caused HIV infection in 63 hemophiliacs, before a safe heat-treated alternative became available in 1985. Currently, about 200,000 units of blood are screened each year (Hong Kong Department of Health, 2002). Paid donation is nonexistent. HIV transmission through transfusion of blood and blood products has therefore not accounted for a significant proportion of HIV infection in Hong Kong. The safety level will continue to rise with the introduction of new technology such as the nucleic acid test to further shorten the "window period" when infection is not detectable (Special Preventive Program, Hong Kong Department of Health, 2001).

TABLE 3. The Reported Number of New and Cumulative HIV/AIDS Cases in Hong Kong From 1997 to 2002

Year	Incidence of New HIV Cases	Cumulative HIV Cases	Incidence of New AIDS Cases	Cumulative AIDS Cases
1997	181	957	64	309
1998	189	1146	63	372
1999	213	1359	61	433
2000	183	1542	67	500
2001	213	1755	60	560
2002	260	2015	53	613

Note. The annual reported number of new HIV cases is increasing. There was an average of 200 cases between 1997 to 2002 and 260 cases in 2002.

WILL HIV PREVALENCE INCREASE IN THE COMING YEARS?

The answer to this question may be controversial. Some predict that without substantial change in high-risk behavior, HIV prevalence in Hong Kong will remain low (Red Ribbon Center, 2000). Others hold an opposite view, arguing that because the HIV virus has a rapid mutation rate, the infectivity of the virus may increase. In addition, the close proximity of Hong Kong to the PRDR and the potential fluctuation of human behaviors over time mandate constant vigilance to ensure that the epidemic does not take off.

In considering the future trend, any societal forces that will influence the behavioral pattern of the population must be considered. These may result from political decisions for economic good. Examples are the Closer Economic Partnership and Arrangement and the Individual Visits Scheme endorsed by the mainland and Hong Kong in 2003. Under the latter agreement, an increasing number of mainland visitors have been (and more will be) given short-term permits to travel to Hong Kong from the major cities in the mainland, including those in the PRDR. As reported by the press, in the first 10 months of year 2003, about 6.5 million mainlanders came to Hong Kong as a result of the Individual Visits Scheme ("Looking Forward to a Better Tomorrow," 2004). Inbound tourism to the territory will increase due to both policies ("Forward March," 2003). The estimated number of people coming into Hong Kong is expected to be at least 8 to 9 million annually ("Looking Forward to a Better Tomorrow," 2004). This high level of human traffic will increase the already intensive human interchange between Hong Kong and the mainland. Individuals who practice high-risk needle-sharing and risky sexual behaviors, including CSWs and clients, will be traveling to and from. Mobility itself is also a factor that influences HIV spread (Hawkes et al., 1994).

Local surveillance data have already pointed to a changing HIV epidemic in Hong Kong. There has been an increasing trend of reported cases of HIV infection since 1997 (Table 3). The number of HIV cases reported each year has increased from an average of 200 before 1998 to 260 in 2002 (Hong Kong Department of Health, 2002). Although this may be partly the result of an increasing number of blood samples tested for HIV, further analysis suggests that new HIV infections are in fact occurring in the local society. The absence of an aging cohort, as shown by the unchanged median age of the reported HIV cases over the years, testifies to the occurrence of new HIV infections in Hong Kong (Wong, Lee, & Ho, 2003). These new infections mainly occur in adult Chinese males. Those older than 35 often present with late-stage complications (Wong, Lee, Low, & Wan, 2003) (Table 4). The number of HIV cases de-

TABLE 4. The Distribution of the Reported HIV/AIDS Cases in Hong Kong by Age and Gender From 1997 to 2002

Year	Reported HIV Cases		Reported AIDS Cases	
	Median Age (Interquartile 25%–75%)	Male-to- Female Ratio	Median Age (Interquartile 25%–75%)	Male-to- Female Ratio
1997	35 (30–42)	4.2:1	37 (32–48)	4.8:1
1998	34 (29–40)	3.0:1	39 (32–48)	5.3:1
1999	35 (29–43)	3.7:1	40 (34–51)	9.2:1
2000	35 (29–43)	3.2:1	40 (33–50)	5.7:1
2001	35 (29–42)	2.9:1	38 (30–47)	4.0:1
2002	36 (30–44)	3.4:1	41 (34–48)	3.4:1

Note. New HIV infections occurring in the community. The average median age at HIV reporting from 1997 to 2002 was 34 (interquartile range = 28–42), similar to figures in the past years, which provides another clue to an impending rise of HIV infection in Hong Kong.

tected in the drug user population has also been increasing in recent years (Hong Kong Department of Health, 2002; see Table 2).

NEW MEASURES TO ENHANCE CONTROL OF THE HIV EPIDEMIC

In response to the HIV epidemic, the government has adopted the strategy of widening access to HIV testing. The Universal Antenatal HIV Testing Programme for all pregnant women in Hong Kong was introduced in September 2001. This testing promotes early diagnosis in women and prevention of transmission to their infants. Antenatal testing also provides opportunities for health promotion. About 40,000 HIV tests are performed on antenatal mothers annually, an initiative that further improves data on HIV prevalence in the general population. Universal Methadone Clinic HIV Antibody Urine Testing was launched as a pilot program in 2003 and has been expanded out throughout the territory since January 2004. This will increase the number of samples tested for HIV in the drug-using population from about 2,000 to over 6,000 per year.

New technology can improve HIV testing acceptance. Currently, the territory's main voluntary counseling and testing clinic operated by the Hong Kong Department of Health is providing HIV tests for 2,300 persons annually (Special Preventive Programme, Hong Kong Department of Health, 2003). With the approval of the rapid test by the U.S. Food and Drug Administration (Centers of Disease Control and Prevention, 2002), there are new opportunities for widening test access, especially in hard-to-reach populations. Those tested will now be able to learn their test results immediately. In anticipation of this paradigm change, a set of recommended principles on the application of the HIV antibody rapid test in Hong Kong has been formulated (Scientific Committee on AIDS of Hong Kong Advisory Council on AIDS, 2003b). This will serve as a useful guide for community-based organization in promoting HIV testing in marginal groups, with the support of the HIV services operated by the Hong Kong Department of Health.

The recent pattern of HIV spread calls for attention to promoting the participation of organizations that have access to higher risk populations but have not yet been involved in HIV/AIDS prevention. These include agencies working with MSM, drug users, street youths, and CSWs. Their participation would broaden the coverage of HIV prevention activities in the territory. There is a need to customize technical assis-

tance and to provide funding to these community agencies to complement and supplement the work of the government and existing AIDS NGOs. This new strategy of enhancing community participation would consolidate the territory's program on targeting high-risk individuals for sustaining effective intervention.

Human mobility is easy to conceptualize but difficult to strategize in term of public health management. An informal network of professionals working on HIV/AIDS in Hong Kong, Macao, and the neighboring Guangdong Province has been in place for over 6 years. Three workshops on HIV surveillance and epidemiology were held in 1998, 2000, and 2002 to discuss and exchange views on the HIV situation in the common PRDR (Red Ribbon Center 1998, 2000, 2002). The SARS outbreak in 2003 provided another impetus for this informal network to exchange information and build capacity in HIV prevention and control, with the formal agreement of the governments of Hong Kong, Macao, and Guangdong. Additional forums will need to be identified or created to be able to strategically address the phenomenon of human mobility and HIV transmission in the region. The efforts of Hong Kong are essential, but they are insufficient to make an impact on the HIV situation without the support of other organizations in the region.

It is important to support planning of intervention measures, coordination of efforts, and monitoring of responses. In this connection, an advisory council on AIDS comprised of experts, professionals, and community leaders was appointed by the government in 1990. The council published its first recommended strategies in 1994 (Hong Kong Advisory Council on AIDS, 1994). In 1998, following a series of vigorous reviews and the input of external consultants, new strategies were developed in 1998 for the period of 1999 to 2002 (Hong Kong Advisory Council on AIDS, 1999). The strategy highlighted, among other things, the application of community planning. In the ensuing years, the council undertook another assessment, during which it conducted consultations and finally formulated and published its revised strategies for 2002 to 2006 (Hong Kong Advisory Council on AIDS, 2002). The new measures described in this section reflect the development of the latest strategies that are now gradually being incorporated by collaborators and partners in the AIDS field.

CONCLUSION

Hong Kong has enjoyed low levels of HIV in the last 2 decades. With the intensifying human mobility and the worsening HIV situations in the neighboring cities and countries, however, there is a potential risk for increased transmission of HIV in the territory. A cohesive program guided by effective strategies form the cornerstone of a positive response to HIV/AIDS. Although HIV activities are delivered by different parties in the government and the community, Hong Kong's HIV/AIDS activities are often rightly described as a "virtual program," a term that denotes a unique set of collaborative efforts toward a common goal of HIV prevention and care. The Hong Kong Advisory Council on AIDS has set the goal of HIV strategies for 2002 to 2006 "to maintain Hong Kong as a low HIV prevalence area." The next few years will be a critical period for Hong Kong to prove that its strategy does work—a strategy that encompasses the new measures of widening access to HIV testing, targeting people at higher risk, and interfacing actively with the mainland. The strategy would also allow Hong Kong to give an affirmative answer to the title of this article, that HIV prevalence will remain low.

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HIV/AIDS Surveillance and Prevention Studies In Japan: Summary and Recommendations

Tooru Nemoto

Japan is considered to have a low prevalence of HIV/AIDS, with a cumulative number of 2,556 AIDS cases and 5,140 HIV cases reported by the end of 2002. However, the recent trend of HIV cases shows a substantial increase, particularly among men who have sex with men and youth/young adults. The epidemiology of HIV/AIDS cases in Japan and a summary of current HIV prevention studies are presented based on surveillance data, research papers, and the Japanese government's annual reports on HIV behavioral and intervention studies of MSM, youths, and Japanese nationals who visit or are temporarily staying in the United States or Thailand. Recommendations and suggestions are presented for future HIV prevention research and structural changes in the Japanese government system, which funds HIV/AIDS care and prevention studies.

HIV/AIDS PREVALENCE AND TREND

The numbers of HIV and AIDS cases reported in Japan are substantially lower than in other Asian countries affected by the AIDS epidemic, such as China, Cambodia, India, and Thailand. The AIDS Surveillance Report of the Japanese Ministry of Health, Labor, and Welfare (MHLW; 2003) reported a cumulative total of 5,140 cases of HIV infection and 2,556 AIDS cases through December 31, 2002 (both excluding hemophiliacs infected through imported blood products mainly from the United States). In 1984, one year before Japan's first AIDS case was reported, the MHLW established an AIDS surveillance system (Kihara, Ichikawa, Kihara, & Yamazaki, 1997), which started reporting asymptomatic HIV cases in 1987 (Kihara, Ono-Kihara, Feldman et al., 2003). A law enacted in 1999 required physicians to report HIV/AIDS cases within 7 days of diagnosis by using a standard form that includes information about the patient's gender, age, nationality, clinical status, onset date of AIDS indicative disease, date of diagnosis, suspected date of infection, main residence during the last few years (Japan or abroad), probable place of infection (Japan or abroad), probable transmission category, and so on (Kihara, Ono-Kihara, 2003). It is mandatory for physicians

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to complete the form and send it to the nearest local health center, which will transmit the information to the governor of the prefecture where the local health center is located. The information is then summarized by the Infectious Diseases Surveillance Center of the National Institute of Infectious Diseases. Duplication of cases cannot be avoided because the form does not contain any unique identifiers (Kihara, Ono-Kihara, 2003). Ninety-four percent of the cases were reported after enactment of the new law (Nakamura & Tanihara, 2001).

A total of 5,767 HIV infections and 2,882 AIDS cases were reported by the MHLW through December 28, 2003, but the detailed annual report was not yet available as of the writing of this article. Therefore, the following description of HIV/AIDS prevalence in Japan is based on the annual report of HIV/AIDS published on December 31, 2002, by the MHLW. The cumulative HIV cases (total of 5,140) breakdown by risk groups are as follows: heterosexual (2,192; 42.6%), men who have sex with men (MSM) (1,769; 34.4%), injection drug users (IDUs) (27; 0.5%), mother-to-child transmission (29; 0.6%), others (91; 1.8%), and unknown (1,031; 20.1%). AIDS cases (total of 2,556) are similarly distributed among these categories: heterosexuals (45.4%), MSM (23.9%), IDUs (0.7%), mother-to-child transmission (0.6%), other (2.5%), and unknown (26.9%). The other category includes hemophiliacs or multiple routes of infection. The percentages of unknown cases of HIV and AIDS are high, due to the Japanese HIV/AIDS surveillance system (e.g., a mandated short reporting period within 7 days of diagnosis and physicians' risk assessment due to language barriers among non-Japanese-speaking clients) (Kihara, Ono-Kihara et al., 2003).

Non-Japanese (foreigners), defined as having a nationality other than Japanese and registered as residents in Japan, overrepresent among HIV/AIDS cases in Japan. In the 1980s, Japan had an economic boom and needed many foreign workers from Asian and South American countries (e.g., Brazil and Peru) to augment the Japanese work force. Although Japan has been in an economic recession for more than 10 years, many foreigners from neighboring Asian countries (e.g., Korea, China, and the Philippines) come to Japan in search of economic opportunities. The number of foreigners who are documented immigrants in Japan is increasing substantially each year (Immigration Bureau of Japan, 2001). The Statistics Bureau of Japan (2004) estimated that 1,851,758 registered foreigners currently reside in Japan. Although non-Japanese constitute only 2% of the general population in Japan, the proportion of HIV/AIDS cases among non-Japanese residing in Japan are disproportionately high (32.2% and 25.4% of cumulative HIV and AIDS cases, respectively; of the annual HIV and AIDS cases in 2002, 15.1% and 18.2%, respectively) (Kihara, Ono-Kihara, et al., 2003; MHLW, 2003).

Male-to-female ratios of HIV/AIDS cases of Japanese nationals and the proportion of the Japanese cases who are over 40 years old are much higher than those in developed countries such as the United States and Europe (Matsuyama, Ichikawa, & Kidokoro, 2003). Seventy percent of the cumulative HIV cases (3,621) and 86% of AIDS cases (2,196) were men (MHLW, 2003). However, when we examine HIV cases of non-Japanese separately from those of Japanese nationals, the ratio of HIV cases among non-Japanese women to men is substantially higher than that of Japanese women to men; that is, non-Japanese women represent 64% of the cumulative HIV cases of non-Japanese, whereas Japanese women represent only 12% of the cumulative HIV cases among Japanese nationals. The higher representation of women in non-Japanese HIV cases than that of Japanese is due to a sharp increase in non-Japanese female HIV cases in 1992 (273 cases; 86% of non-Japanese cases). The majority

of these HIV-positive non-Japanese women were from Asian countries, in their 20s, who reported acquiring the infection abroad (Kihara et al., 1997) and were likely to be sex workers. After 1992 the women's ratio of HIV cases among non-Japanese dropped to about 55% during 1995 and 1999 and then dropped to about 40% in 2000, 2001, and 2002. The spike in HIV cases of non-Japanese women was attributed to temporal changes in the number of non-Japanese women being tested for HIV rather than to increases in HIV infection rates in this population or those among Asian female sex workers (Kihara et al., 1997). However, there is still a significant difference in male-to-female ratios of HIV cases between Japanese and non-Japanese.

TRENDS

Overall, except for the cases reported in 1992, the annual number of HIV cases has been increasing consistently: about 300 cases each year in 1993, 1994, and 1995; about 400 cases each year in 1996, 1997, and 1998; about 500 cases each year in 1999 and 2000; and about 600 cases each year in 2001 and 2002 (see detailed figures in MHLW, 2003 or Kihara, Ono-Kihara, et al., 2003). HIV cases among men and MSM and, in recent years, among youths and younger adults, including both MSM and heterosexuals, are also increasing (Kihara, Ono-Kihara et al., 2003). Kihara, Ono-Kihara, et al. (2003) argued that with the recent increase of sexually transmitted disease (STD) cases in the general population and HIV infection rates among blood donors, unfavorable attitudes toward HIV/STD education in Japanese school systems, low prevalence rates of HIV testing, infrequent condom use among sexually active youths, and the interaction of all these factors, HIV infection cases could reach an epidemic level, with an estimated 50,000 Japanese living with HIV by 2010.

This trend of AIDS cases differs from that of other developed countries such as the United States, in which AIDS cases have declined since the middle of the 1990s because of antiretroviral therapy. Kihara (2003b) pointed out that this is due to the lack of early detection of HIV infection and the delay of treatment in Japan. Reported annual AIDS cases were about 240 each year in 1996, 1997, and 1998, then increased to 301 in 1999, 329 in 2000, 332 in 2001, and 308 in 2002. We must wait to make a definitive statement about the plateau of AIDS cases in recent years. AIDS treatment may have prevented further increases in AIDS cases but may have had less impact on reducing progression to AIDS, perhaps due to late diagnosis. However, unfavorable attitudes toward HIV testing among Japanese and providing appropriate treatment for persons with HIV must be addressed immediately so that future AIDS cases can be significantly reduced.

The trends of HIV/AIDS cases in Japan by gender and Japanese versus non-Japanese were examined in a report of the MHLW (2003). Japanese male HIV and AIDS cases have been gradually increasing (e.g., 379 HIV cases and 212 AIDS cases in 1999, 336 and 239 in 2000, 475 and 221 in 2001, and 481 and 232 in 2002), whereas Japanese female and non-Japanese male and female annual HIV and AIDS cases have remained steady at less than 100 cases a year, except HIV cases among non-Japanese women in 1991, 1992, and 1993. MSM cases have been increasing exponentially since 1999, and heterosexual cases have also been gradually increasing since the mid-1990s. Although the HIV cases among Japanese women seem to be gradually increasing in recent years, the annual number of HIV cases remained less than 51 since 1987. In non-Japanese male HIV cases, fewer than 30 annual HIV cases have been reported in MSM, heterosexual, or the unknown category in the past 10 years. Among non-Japanese females, the annual number of HIV cases in either heterosexual or un-

known categories has remained at less than 75 from 1993 through 2002, after it peaked in 1992 (273 cases) (MHLW, 2003).

HIV/AIDS BY AGE GROUP

The majority of HIV/AIDS cumulative and annual cases in Japan are found in youth or young adults aged 20-39 years. The cumulative HIV cases by December 31, 2002, breakdown by age groups are less than 20 years (158; 3.1%), 20-29 years (2,102; 40.9%), 30-39 years (1,552; 30.2%), and 40 years and over (1,328; 25.8%) (MHLW, 2003). The cumulative AIDS cases are distributed more heavily in older age groups than younger ones: less than 20 years (18; 0.7%), 20 to 29 years (383; 15.0%), 30 to 39 years (792; 31.0%), and 40 years and older (1,363; 53.4%) (MHLW, 2003). In 2002, 34.5% and 34.0% of HIV cases were reported in the age groups of 20-29 and 30-39 years, respectively. The *HIV/AIDS Surveillance Report* pointed out that in recent years HIV cases of those aged 20-29 have been increasing (MHLW, 2003). Among cumulative HIV cases in Japanese MSM, individuals in the age group of 25 to 29 years constitute most of these cases. The annual numbers of HIV cases in the age groups of 20 to 29 and 30 to 39 years have been consistently increasing.

PROBABLE PLACE OF HIV INFECTION (JAPAN VERSUS ABROAD)

Although the majority of HIV/AIDS cases among Japanese nationals were infected within the territory of Japan, the HIV/AIDS surveillance conducted in Japan between 1995 and 1999 provided estimates of the AIDS cases infected in foreign countries (23% of heterosexual males, 14% of females, and 5% of homosexual males) (Hashimoto et al., 2002). Among the annual HIV cases in 2002, 77.2%, 10.3%, and 12.5% were reported as being infected in Japan, foreign countries, and unknown, respectively (MHLW, 2003). The HIV/AIDS surveillance data include suspected date of infection, main residence during the last few years (Japan or abroad), and probable place of infection (Japan or abroad).

Because of the relatively easy access by air transportation and inexpensive airfares, a large number of Japanese travel abroad for various purposes, such as business, vacation, and study. The number of Japanese who departed for foreign countries increased from 11 million in 1990 to 18 million in 2000 (Japan National Tourist Organization, 2002), and during a high peak of traveling between December 2002 through January 2003, more than 2.6 million Japanese traveled to foreign countries (Japan National Tourist Organization, 2003), mostly to Hawaii, other Pacific islands, and Asian countries. It is well known that Japanese men travel to neighboring Asian countries such as China, Taiwan, Korea, and Thailand to engage in sex with commercial sex workers (Kusaka, 2000). Japanese youth also travel to neighboring Asian countries such as Thailand, Cambodia, Nepal, and India to experiment with illicit drugs and engage in high-risk behaviors such as sex under the influence of alcohol and/or drugs (Nemoto, Yokota, Hanafusa, & Wada, 2002).

Among cumulative HIV cases, 68% of Japanese heterosexual males, 94% of Japanese MSM, and 76% of Japanese females reported they were infected in Japan (MHLW, 2003). Thus, one third of Japanese heterosexual men and a quarter of Japanese women were either infected in foreign countries or the place of infection was unknown. The number of HIV cases among Japanese who reported their infection to be from foreign countries may not be reliable, because most of them might not know exactly where and from whom they were infected. However, these numbers likely included those who traveled abroad and engaged in high-risk behaviors in foreign countries. Because of heavy trading with the United States and other Asian countries,

a large number of Japanese continue to travel abroad. HIV/STD prevention intervention programs specific to these mobile Japanese, mainly men, are needed.

BEHAVIORAL SURVEILLANCE AND PREVENTION STUDIES

Many HIV/AIDS-related behavioral surveillance and HIV prevention studies in Japan have been supported by the MHLW. A research team led by Dr. Masahiko Kihara has been conducting socioepidemiological studies on monitoring and prevention of HIV/AIDS. His research team, which consisted of more than 80 Japanese researchers from universities, research institutes, public hospitals, and community-based organizations, was divided into the following nine subgroups depending on topics or target groups: (a) surveillance analysis, (b) MSM, (c) foreigners in Japan, (d) IDUs, (e) STD clinic clients, (f) blood donors and pregnant women, (g) behavioral science, (h) sex workers; and (i) special topics (see Kihara, 2003a). The group meets annually in March to present research findings.

In this article a summary of behavioral and HIV prevention studies is presented, specific for MSM and youth in Japan based on an annual report (Kihara, 2003a) and for high-risk groups of Japanese who visited or resided in foreign countries (Nemoto, Hashimoto, Hidaka, Takenaka, & Onizuka, 2003; Nemoto, Iwamoto, Morris, Wada, & Yokota, 2003; Nemoto, Yokota, et al., 2002).

MEN WHO HAVE SEX WITH MEN (MSM)

As described in the previous section, HIV cases among MSM are increasing annually, particularly among young gay men. The cumulative HIV and AIDS cases among MSM by December 31, 2002, were 1,769 (34.4% of the total HIV cases) and 610 (23.9% of cumulative AIDS cases), respectively (MHLW, 2003). MSM contribute 53.6% of the total annual HIV cases, which was the highest percentage among risk groups in 2002. Additionally, the total number of HIV cases of MSM in 2001 ($n = 300$) increased 48% from that in 2000. Thus, the upward trend of reported HIV cases is exponential and the steepest among the risk groups. Hashimoto et al. (2002) presented an estimate of 35,000 MSM cumulative HIV cases in Japan by 2010, which is much higher than estimates for heterosexual men (8,700) and women (3,500). For these predictions, Hashimoto et al. (2002) used population estimates of Japanese heterosexual men and women (40 million each) and homosexual men (500,000) aged 15-59 years; they assumed a ratio of MSM to heterosexual men of .0125. The population of MSM might be underestimated. For example, a household survey of adults in the United States conducted between 1996 and 2000 reported that 3.1-3.7% of the total samples engaged in male-to-male sex in the past year (Anderson & Stall, 2002). If a higher estimate of MSM is used, more than 35,000 of MSM will be infected with HIV by 2010. HIV prevention efforts in Japan must therefore focus on this risk group.

Recently in Japan, human rights and sensitivity toward gay men, lesbians, and transgenders have been gradually improving because of continuous efforts by advocacy groups for lesbian, gay, bisexual, and transgender persons (LGBTs) and improved media portrayals of gay men and transgenders, as well as social awareness of and respect for sexual and gender minorities in the society. However, institutional and individual discrimination and prejudice against LGBTs exist at all levels of society. When we discuss HIV/AIDS issues in Japan, it must be noted that hemophilic HIV/AIDS cases dominated in the early stage of the AIDS epidemic in Japan (more than 80% of AIDS cases were in this category before 1990) (Kihara et al., 1997). Compared with the general sympathy for and the government's apology and pledge to support hemophilic persons with AIDS/HIV, gay men were discriminated against in

terms of access to HIV testing, treatment, and support systems in the early stage of the epidemic (Kazama, 1997; Sawazaki, 1997). Homophobia in Japanese society was further intensified by HIV/AIDS, and in response, political activism by gay community and community-based organizations (CBOs) emerged in the late 1980s to fight for the human rights of gay men and people with HIV/AIDS (Ikegami, 1997; Sawazaki, 1997).

Historically, the Japanese culture, rooted in Buddhism, Shintoism, and Confucianism, accepted homosexual behaviors, and there have been no laws restricting anal or oral sex (Ikegami, 1997; Sawazaki, 1997). However, many gay men legally marry women because of social pressures (Sawazaki, 1997) and do not identify themselves as gay men or homosexuals because many consider homosexual behavior as a matter of “taste” or “preference” rather than “lifestyle” (Ikegami, 1997). Furthermore, once these men “come out,” they must face both individual and institutional discrimination. In mass media, such as TV or radio talk shows, a derogatory term for gay men, feminine gay men, or transgender women, *okama*, is still commonly used without any consideration of its harmful effects on gay men and transgenders. Mass media continues to promote a stereotypical view of gay men, lesbians, and transgenders that further stigmatizes members of these groups, as well as other affected persons such as families, partners, and friends. Therefore, it is extremely difficult for gay men to come out in Japanese society (Sawazaki, 1997).

After a long struggle by human rights and advocacy groups in the late 1980s and early 1990s to obtain equal rights for gay men and gay men with HIV/AIDS, a number of CBOs supported telephone hotlines for providing information about HIV/AIDS and referral services, support groups for gay men or people with HIV/AIDS, and media campaigns and client advocacy, as well as HIV prevention services (Ikegami, 1997). In addition, HIV prevention studies for MSM have been implemented in a few targeted cities, such as Tokyo, Osaka, and Nagoya.

Dr. Ichikawa's group, part of Dr. Kihara's research team, has been conducting HIV-related behavioral surveillance and intervention studies targeting MSM in Japan (Ichikawa & Research Team, 2003). Based on data from an HIV testing site in Shinjuku, Tokyo, which is located close to a district clustered with many gay bars and clubs, 81 males (1.6%) were found to be HIV-positive in 2002 (out of a total of 5,184 males tested), and among them 84% were MSM (Ichikawa & Research Team, 2003). Ichikawa and colleagues estimated that the HIV seroprevalence rate among MSM who were tested at the clinic was 4.4%, which was higher than the figure estimated in 2001 (3.2%).

Based on a collaboration among gay community members, CBOs, and university researchers, Ichikawa's group has been conducting HIV prevention intervention studies in gay communities in Osaka, which offer HIV testing and counseling at community events, HIV prevention education programs targeting club and bar owners and patrons, and community outreach programs involving a large number of volunteers (e.g., distribution of free condoms, newsletters, and information pamphlets about syphilis) (Ichikawa & Research Team, 2003; Onizuka & MSM Research Team, 2003). The serological data collected at two community events in 2002 from gay men who participated in the study indicated an HIV infection rate at 1.3%, 19.3% for syphilis *treponema pallidum* hemagglutination assay (TPHA), and 19.7% for hepatitis B antibodies (Kimura et al., 2003). Compared with the results collected in the previous 2 years, Ichikawa and Research Team (2003) reported increases in the number of individuals receiving HIV testing and free condoms, but also found no statistically

significant changes in consistent condom use with steady or casual partners. A similar HIV prevention intervention study has been conducted in gay communities in Tokyo (Sato & MSM Research Team, 2003).

These government-supported HIV/STD prevention intervention projects for MSM have been successful in terms of increasing awareness of HIV/STDs in the targeted MSM communities and in revitalizing MSM community movements through the collaboration of MSM community members, CBOs, public health providers, and university researchers. However, further studies are needed to develop and evaluate theoretical models for HIV prevention particularly targeting high-risk young gay men. For example, culturally sensitive and specific cognitive models for counseling or case management of young gay men could be developed. The models developed by Dr. Ichikawa's intervention team could be further evaluated by implementing them in other large cities in Japan after theoretical models in their interventions are specified.

YOUTH

A majority of cumulative HIV/AIDS and recent cases in Japan are youth or young adults aged 20-39 years. The cumulative HIV/AIDS cases up to December 31, 2002 were reported in the previous section. In 2002, 34.5% and 34.0% of annual HIV cases were reported among individuals aged 20-29 and 30-39 years, respectively (MHLW, 2003). Therefore, HIV prevention programs must target youths and young adults, including adolescents (junior high, high school, and college students, as well as temporary or part-time workers and working-class youth). A recent study revealed that a number of Japanese youth engage in first sexual intercourse at an early age, have had sex with multiple casual partners, and have paid for sex (males only) (Ono-Kihara, Kihara, & Yamazaki, 2001). The increase in sexual activities and unsafe sex among youth are reflected in the recent increases in the number of abortions (which has been legal in Japan since 1952) among teenagers and in STD cases (e.g., chlamydia and gonorrhea) among youth (Ono-Kihara et al., 2001). Because unprotected sex is widespread among youth, there is an urgent need to implement HIV/STD prevention education programs, particularly in junior high and high schools. A survey on primary, junior high, and high schools in selected prefectures in Japan revealed that sex education was provided at all grades, but only for an average 2 or 3 hours a year (Kihara, Ono-Kihara et al., 2003).

One of Dr. Kihara's research teams, led by Dr. Masako Kihara, has been conducting HIV/STD-related sexual behavioral surveys targeting public university students, heterosexual couples among teens in large cities, as well as opinion/attitude surveys among high school students, teachers, and parents in two selected prefectures in Japan (Kihara & Research Team, 2003). Kihara and colleagues reported that a number of high school students are sexually active in terms of numbers of partners (e.g., based on a 2002 survey, 52% of sophomore high school students in one prefecture reported more than one sexual partner in the past), utilize internet dating services (13% of male and 15% of female sophomore students), and have been involved in paid sex through *Enjo-Kousai* (1.3% of female sophomore students), in which female students receive money for sex from middle-aged men to purchase clothes or other fashionable items. Also, 16% of male and 19% of female students who had ever had sex reported having never used a condom in the past 3 months, and more than 90% had used condoms for contraceptive purposes. Although the selected prefecture for this survey was located in the southeastern part of Japan, a number of students reported illicit drug use (e.g., 0.3% for speed/methamphetamine, 0.6% ecstasy, and

1.0% solvent among male students), and these illicit drug users tended to report multiple sex partners (e.g., 56% of ecstasy users reporting more than four sex partners).

Based on analyses of the survey data collected from students, teachers, and parents, and examination of social marketing models and theories of behavioral change, Dr. Kihara's team developed an intervention study at three levels: (a) a prevention campaign distributing posters and pamphlets at community levels in collaboration with public health-service clinics (*bokenjo*); (b) classroom interventions utilizing slides, videos, and demonstrations of condom use; and (c) individual counseling for students who come to see a school nurse (Kihara & Research Team, 2003). Intervention programs and information materials addressed STD infection rates, induced abortion rates among teens, condom utilization, methods of contraception, and other issues which were culturally and locally specific to the targeted students. Based on pre-testing and posttesting among high school students who participated in the intervention study, Kihara and Research Team (2003) reported an increase in knowledge about HIV/STDs and intention to use condoms. This was the first prefecture-wide HIV/STD prevention study targeting high school students in Japan, and it showed successful behavioral and attitudinal changes among the target groups, as well as a positive impact on school administrators, public health officials, and parents. This intervention model could be implemented and scientifically evaluated in other prefectures, particularly in those located in metropolitan areas where high school students are sexually active and exposed to commercial sex activities. The key to successful implementation of HIV/STD intervention projects is the involvement and collaboration of all affected people, including high school students, school officials and teachers, public health providers (doctors, nurses, and community health workers), CBOs and advocacy groups, and policymakers of the local and national government.

JAPANESE NATIONALS VISITING OR RESIDING IN FOREIGN COUNTRIES

The HIV/AIDS surveillance data reported by the MHLW include the probable place of HIV infection, either in Japan or abroad. In the past 5 years the proportion of HIV infections acquired in foreign countries was 14.5% in 1998, 11.9% in 1999, 12.3% in 2000, 9.5% in 2001, and 10.3% in 2002. As reported previously, AIDS cases infected outside of Japan were estimated at 20.8% for heterosexual males, 14% for females, and 5% for homosexual males (Hashimoto et al., 2002). In 2002, 77.2%, 10.3%, and 12.5% of HIV cases were reported as having been infected in Japan, foreign countries, and unknown, respectively (MHLW, 2003).

HIV-POSITIVE JAPANESE RESIDING IN THE U.S.

Nemoto and colleagues (2003) conducted a study on HIV risk behaviors and access to and utilization of HIV/AIDS care among HIV-positive Japanese nationals residing in Los Angeles, New York City, and San Francisco. Based on 25 qualitative interviews (average age, 41 years; 88% male; average years living in the United States, 13; 52% having permanent residency; and 72% homosexuals), the study revealed that HIV-positive Japanese nationals, including those who did not have permanent residency status, had utilized many health and social service programs offered by AIDS service organizations (ASOs) in the community. Although sampling biases must be considered because the participants were recruited from ASOs or HIV-positive support groups for Japanese, a majority of them expressed their satisfaction with HIV/AIDS care services in general. Some expressed concerns about the costs of treat-

ment, as well as the treatment itself and physical health. However, many felt more freedom about being openly HIV-positive and had experienced less prejudice or discrimination than they would have in Japan. Fifteen participants (60%) reported having had steady partners during the past 12 months, and the same percentage (60%) reported having had casual sex during the same period. Two thirds of those who had casual sex did not reveal their HIV-positive status to partners. Some reported that it was because they always practiced safe sex or had engaged in low-risk sex, such as oral sex. One participant also reported that he did not always use condoms, because if casual partners did not want to use a condom or were willing to engage in high-risk behaviors, he thought that his partners were not concerned about HIV or might be HIV-positive themselves.

Two study participants were infected with HIV through injection drug use. A majority of the participants had used marijuana, and 44% had engaged in sex under the influence of drugs or alcohol. Eighteen participants (72%) reported that they were infected with HIV in the United States (three in Japan and four unknown), and only four participants reported that they were definitely going back to Japan. Many expressed their concerns or reasons why they would not go back to Japan (16 reported career or economic reasons, 12 cited prejudice and discrimination against people who are HIV-positives in Japan, and nine cited the lack of a support system in Japan). Some HIV-positive Japanese participants had engaged in sexual risk behaviors, particularly with casual partners, although many of them had utilized HIV/AIDS services and counseling. Therefore, existing HIV prevention and care programs for HIV-positive Japanese in the United States must address risk reduction methods (e.g., avoiding high-risk behaviors such as unprotected receptive anal sex). It is also important to have HIV prevention outreach programs that target Japanese nationals (such as students or temporary workers), particularly those who have not adapted to American life and may experience barriers to accessing health and social services.

JAPANESE VISITING OR TEMPORARILY STAYING IN HAWAII

Nemoto, Iwamoto, et al. (2002) conducted a study on HIV-related risk behaviors in relation to sociopsychological factors among Japanese nationals visiting Honolulu, Hawaii. More than 1.4 million Japanese visited Hawaii in 2002; Hawaii is one of most favored places for Japanese tourists and students. An anonymous and structured survey questionnaire was self-administered to 249 Japanese nationals who were recruited by trained survey workers at target areas such as Waikiki beach, shopping malls, Japanese restaurants, universities, and language schools (average age: mean = 27, $SD = 8.6$; 53% female; 107 tourists [43%], 98 students [39%], and 44 temporary workers [18%]; 82% single; 22% visiting Hawaii the first time). The study revealed high rates of self-reported STD infections (10% of males and 20% of females) and HIV infection rates (7%), although only 12% of the participants had ever been tested for HIV. In general, the participants reported multiple sex partners during their lifetime (90.4%) and during the past 12 months (21.2%). Participants reported inconsistent condom use for vaginal sex with steady as well as casual partners. Only about one quarter of the participants reported always using a condom for vaginal sex with casual partners during the past 12 months, either in Japan or Hawaii. Furthermore, over 80% of the participants had engaged in sex under the influence of alcohol. Multivariate analyses revealed that student status, being male, levels of AIDS knowledge, and positive attitudes toward condom use in general, were significantly correlated with the frequency of condom use for vaginal sex with a steady partner in the

past 12 months. Also, temporary working status, positive attitudes toward drug use, and negative attitudes toward condom use were significantly correlated with the frequency of sex with a steady partner under the influence of drugs.

Japanese tourists or students might be more sexually active in Hawaii than in Japan because they are away from home and parental supervision. However, the study participants did not seem to change their drug use and sexual behaviors while visiting Hawaii as compared with their behavior while at home in Japan. Instead, a specific group (temporary workers) had engaged in risky behaviors both in Japan and Hawaii. Therefore, future HIV/STD intervention programs must address this high-risk group's attitudes toward drug and condom use in order to increase their protective behaviors against HIV/STDs.

JAPANESE VISITING BANGKOK, THAILAND

After the Hawaii study, Nemoto, Yokota et al. (2002) conducted a similar study targeting Japanese tourists visiting or temporarily staying in the Khaosan Road area of Bangkok, Thailand. An anonymous and structured survey questionnaire was self-administered to 150 Japanese tourists who were recruited by trained interviewers in the targeted area (average age: mean = 24.2 years, $SD = 4.5$; 42% female; 95% single; 84% completed or some college education; 36% visiting Thailand for the first time). The study revealed that about two thirds of the participants had used at least one illicit drug. During the past 6 months, participants had used marijuana in Japan (33% of drug users) and in Thailand (49% of drug users). Due to the perception of HIV/STD risk, which is higher in Thailand than in Japan, the participants had engaged in riskier sex in Japan than in Thailand. Almost all participants (91%) reported always using condoms for vaginal sex with sex workers in Thailand, whereas 83% had always used condoms in Japan. Also, a higher percentage of the participants (88%) reported sex under the influence of alcohol in Japan than in Thailand (71%).

It should be noted that Japanese tourists in this study increased their safe sex practices in Thailand based on their perception of the greater risk in Thailand and that attitudes toward condom use were significantly correlated with condom use behaviors. Therefore, intervention programs should address the perceptions of risk for HIV/STDs, as well as attitudes toward condom use, to increase safer sex behaviors. The study also found that the participants who had engaged in risk behaviors in Japan were more likely to engage in the same risk behaviors in Thailand. Therefore, this risk group must be targeted by intervention projects.

RECOMMENDATIONS FOR FUTURE HIV EDUCATION AND PREVENTION STUDIES

Although the reported annual HIV cases in Japan have been relatively stable in the past 3 years (about 600 cases a year), the proportion of HIV cases of MSM and youth have been substantially increasing. Kihara, Ono-Kihara et al. (2003) pointed out that the Japanese HIV/AIDS surveillance system needs improvement (e.g., reducing the number of HIV/AIDS in the unknown category and of duplicate cases by improving unique identification of individual cases). Although some errors in the surveillance data need correction, the number of HIV cases is estimated to be 47,200 in 2010 (35,000 MSM, 8,700 heterosexual males, and 3,500 heterosexual females) (Hashimoto et al., 2002). As described in previous sections, MSM, heterosexual youth, and those who travel abroad have been engaging in HIV-related risk behaviors, including sex under the influence of drugs. The estimated number of HIV infections projected by 2010 may be underestimated. The number of HIV/STD infections could

explode, particularly among sexually active MSM and youth/young adults because of the unique social and cultural factors in Japan, such as low social awareness regarding HIV/AIDS, negative attitudes toward HIV/AIDS education in Japanese school systems, abundant advertisements and information in the public facilitating commercial and casual sex (e.g., Internet dating services), and low HIV testing rates in the general population (Kihara, Kihara, & Ichikawa, 2002).

Supported by the Japanese MHLW, Dr. Kihara's research team has been conducting HIV/STD sero-surveillance and behavioral surveillance monitoring at HIV testing sites, and among targeted groups such as MSM, blood donors, high school students, and female sex workers, and has analyzed and presented results annually (Kihara, 2003a). It should be noted that Dr. Kihara's leadership in spearheading his research team and the field of HIV prevention has had a significant impact on improving the lives of HIV/AIDS-affected people in Japan, as well as on scientific knowledge about HIV/AIDS care and prevention. The national guidelines for HIV/AIDS by the MHLW issued on April 1, 2000 stressed "the importance of enhancing the monitoring system, improving epidemiologic and social research, targeting vulnerable populations, establishing partnerships, and accurately evaluating the effectiveness of HIV care, treatment, prevention, and control programs" (Kihara, Ono-Kihara et al., 2003, p.S61).

It is essential to inform Japanese society about HIV/AIDS, including its detrimental effects on society, the health and well-being of people with HIV/AIDS, the economic impact of the disease on productivity in the workforce, and increased health care costs. However, providing information about the future impact of HIV/AIDS alone may not be effective enough to change people's sexual risk behaviors and attitudes toward practicing safe sex and drug use. It is important to redirect public policy regarding HIV/AIDS care and prevention. In general, implementing policies or programs based on scientific evidence is very difficult in Japan (Kihara, Ono-Kihara et al., 2003; Yonemoto, 1997). AIDS activism has had a strong impact on system level changes in HIV/AIDS care and prevention (Yonemoto, 1997); however, many public policies and social and health programs are still developed by government bureaucrats and turned into law by the elected legislators, and these policies and programs often ignore the opinions of those affected at the community level.

Below are suggestions for future HIV prevention studies, which should reduce further spread of HIV in Japan. Limitations of implementing these studies must be acknowledged mainly because of the author's research background; that is, the author has been conducting substance abuse and HIV prevention research mainly in Asian communities in the United States, although he is bilingual and bicultural in Japanese and the United States mainstream cultures.

Studies in High-Risk Behaviors in Vulnerable Populations. It is already known that HIV/AIDS first hits the most vulnerable populations, such as sex workers, IDUs, MSM, disfranchised or socioeconomically disadvantaged people, and stigmatized populations. Therefore, further research studies are needed to describe the degree of vulnerability or risk within these targeted groups in relation to Japan's unique sociocultural factors. For example, illicit drug use among youth has been increasing in recent years, but few investigators conduct ethnographic studies in the drug culture among youth. Marijuana, methamphetamine, LSD, and ecstasy are easily available in large cities in Japan; however, there is a dearth of research in drug use in relation to sexual risk behaviors, particularly among youths and gay men, except the few being conducted by Dr. Wada's research team (Wada & Drug User Research Teams, 2003).

Risk factors and behaviors, including alcohol use, must be addressed in HIV prevention programs. Alcohol use is accepted or even encouraged in Japanese society. A large number of Japanese youth, gay men, middle-aged men and women, travelers, students, and so on engage in sex under the influence of alcohol. Casual or commercial sex usually involves alcohol consumption. The risk of alcohol consumption in relation to HIV/STD infections and violence must be taught as early as primary or junior high school.

Among sex workers, foreign female sex workers seem to be the most vulnerable to HIV/STD infections. A large number of female sex workers from foreign countries, such as Brazil, Peru, the Philippines, China, Korea, and Thailand, work in large metropolitan areas in Japan, as well as in small cities in rural areas. These female sex workers face a number of problems in terms of access to health care, STD testing, language barriers, cultural incompetence among health service providers, violence from “pimps” and male customers, and immigration issues. Law enforcement officers already know that occasional arrests and deportation of sex workers do not prevent their trade. A few studies have been conducted in this population by Dr. Kihara’s research team. Outreach and support groups for these foreign sex workers are urgently needed to provide culturally appropriate health information and referral services, and to improve the health and well-being of the sex workers.

Because of the access to advanced technology in Japan, the commercial sex industry differs from other countries. Female junior and high school students engage in *Enjo Kousai*, mainly through Internet services using cellular phone access. These inexperienced and uneducated schoolgirls are easily persuaded by middle-aged men to engage in unprotected sex. Also, through Internet chat rooms or services, many Japanese meet people and engage in casual sex with them without any knowledge of their partners. This situation sometimes puts users in risky situations in terms of violence and HIV/STD infections. More education and intervention programs are needed that are specific to these Internet service users.

As described previously, groups that are vulnerable to HIV/STD infection include drug users, gay men, immigrant sex workers, and other disfranchised populations in Japan. Their vulnerability to HIV/AIDS is strongly related to their social and economic status in Japan. Women’s roles in Japanese society remain inequitable. An amended law requiring equal employment opportunities for women was implemented in 1999, and an increasing number of professional women are entering all sectors in Japan. However, institutional discrimination and prejudice against women are ubiquitous in Japanese society. The lower status of women relative to men creates a situation in which women have less power than men in negotiations and decisionmaking, including practicing safe sex.

Similar to women, other disenfranchised and stigmatized people, such as gay men, transgenders, and immigrants in Japan, have limited access to public health services and are often isolated from the general society. Gay men or transgenders who live in rural areas or midsized cities do not have access to support groups or health service providers who have knowledge about and sensitivity toward their specific issues. Immigrants or foreigners in Japan often face overt discrimination and limited access to public health services or support groups.

Belonging to these vulnerable groups is a risk factor for HIV/STD infection. However, it is difficult to change the status or membership of the groups. Therefore, it is very important that HIV prevention studies find protective factors among these vul-

nerable groups and develop intervention projects to reinforce the protective factors and reduce changeable risk factors.

Studies in Protective Behaviors and Culturally Appropriate Interventions. Compared with other industrialized countries, Japanese use condoms more often, though mainly for the purpose of contraception. For example, the previously described survey for high school students showed that more than 90% of students reported using condoms for the purpose of contraception (Kihara, Ono-Kihara, et al., 2003). Although the age for first sexual intercourse has been declining in recent years (Ono-Kihara et al., 2001), more than two thirds of Japanese sampled reported having used condoms for their first sexual intercourse (Nemoto, Yokota, et al., 2002). It is very common to see Japanese male actors using condoms for vaginal sex in sex videos. Studies should identify positive norms toward condom use among Japanese.

The majority of Japanese do not practice religion in terms of regularly going to temples or churches or being involved with religious groups. However, Japanese culture has been heavily influenced by Buddhism, and Japanese society stresses collectivism instead of the individualism often seen in Western society. The society values unity within the family, extended family, and community. Although these collectivist norms often serve to facilitate the status quo and foster discrimination against outsiders, HIV/STD prevention efforts in Japan could take advantage of the positive outcomes of the collectivist norms. Counselors and case managers are effectively utilizing the important roles of family; however, few studies address protective factors for the family in prevention of HIV and substance abuse.

Cellular phones are used by Japanese everywhere and at all times. Japanese technology in communication is rapidly developing. The advanced technology in Japan can be used to reinforce positive norms toward condom use and facilitate HIV/STD testing. Internet chat rooms accessible by cellular phones and home computers can be used for HIV/STD and substance use prevention efforts. Professionally led chat rooms or counseling may be effective in changing high-risk behaviors, particularly in Japanese society, where many are afraid to go to an HIV testing site because of being recognized by others.

Structural Changes in Implementing HIV Prevention Studies. People with HIV/AIDS, HIV/AIDS-affected people, community advocates, researchers, health service providers, public officials, and policymakers must address structural change in implementing HIV/AIDS prevention studies. The current prime minister of Japan, Junichiro Koizumi, promised to implement his vision of structural change in the Japanese system when he was appointed the prime minister. However, he is facing stern opposition, even within his own political party, and consequently, structural changes have not been visible, particularly in terms of economic recovery.

Due to the Japanese government's negligence in monitoring imported blood products, a number of Japanese hemophiliac patients were infected with HIV and died of AIDS. However, it is clear that the Japanese government has been playing a major role in terms of HIV/AIDS care and prevention. Japan hosted an international AIDS conference in Yokohama in 1994, but since then, AIDS/HIV issues have not been taken seriously by the mass media and society. It is time that the government directly provide financial and technical support for outreach and HIV/STD prevention projects at community-based ASOs. In the United States, the Centers for Disease Control (CDC) provides technical and financial assistance to community-based ASOs through grant mechanisms. In collaboration with the CDC, ASOs provide standardized and target group-specific prevention programs. The efficacy and impact of the programs

are scientifically evaluated (Glassman, Lacson, Collins, Hill, & Wan, 2002; Rugg et al., 2000). The Substance Abuse and Mental Health Services Administration has been providing outreach and HIV prevention programs to substance users with high risk for HIV through grants that directly support community-based substance abuse treatment programs (e.g., Centers for Substance Abuse Treatment's Targeted Capacity Expansion Programs). The MHLW can make similar structural changes to initiate an institution or agency that directly provides HIV prevention programs and monitors their impact on health and well-being among target groups.

A large number of HIV/AIDS surveillance and prevention studies have been funded by the Japanese government, such as those of Dr. Kihara's research team. The quality of research can be improved by implementing a peer review system, in which experts in the field evaluate the scientific merits of proposals, experience, and productivity of research teams; plausibility of implementing proposed studies; impact on filling a gap of scientific knowledge; protection of human subjects; and proposed budgets. About \$2.5 billion was allocated to AIDS/HIV-related studies by the National Institutes of Health (NIH) in the United States (Office of AIDS Research, NIH, 2003). The quality of NIH-funded research studies is guaranteed by peer review systems. It is time to restructure the review and monitoring system for government-funded research studies in Japan. In addition, HIV prevention studies must be conducted by a team of researchers and staff who devote 100% of their time to the projects. In Japan, MHLW-funded research studies do not often cover the salaries of principal investigators and other project staff, who are employed by universities or other institutions.

CONCLUSIONS

Japan currently faces a number of social and public health problems that are often thought to be unique to Japan. However, globalization of the world economy and social and health problems has reduced differences in sources and manifestations of the problems, at least among industrialized nations. Through implementing structural changes in the government policies and regulations regarding HIV/AIDS care and prevention, Japan will be able to collaborate with researchers, service providers, and policymakers in other Asian countries and the United States in order to increase its capacity to stop the further spread of HIV/AIDS in its own land, as well as in developing Asian countries.

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HIV/AIDS In the Philippines

Ricardo Mateo Jr., Jesus N. Sarol Jr., and Roderick Poblete

HIV/AIDS has not yet caused a widespread epidemic in the Philippines. Rates in all the usual risk groups (sex workers, men who have sex with men, STD clients, returning overseas workers, etc.) have remained below 1%, except in a few areas, where they are still only 1-2% in some risk groups. The low level of HIV may be due in part to the low number of sex worker clients per night, the relatively low number of full-time sex workers, the low proportion of injectors among drug users, the early multisectoral response to the epidemic, and the presence of social hygiene clinics for sex workers. The incidence of STDs, multiple partners, and injection drug use with needle sharing, however, is increasing, suggesting that an explosive epidemic could occur if the virus is introduced into the appropriate risk groups. The Philippine government has confronted the problem of HIV/AIDS aggressively with an action plan that includes an emphasis on the response of the local government agencies, involvement and support of nongovernmental organizations (NGOs), incorporation of HIV/AIDS education into the school curriculum, and laws forbidding discrimination against persons with HIV/AIDS or belonging to risk groups. Local and international NGOs have been actively involved in prevention of HIV/AIDS and support of affected individuals. Although the Philippines is currently experiencing low rates of HIV/AIDS, the country needs to be prepared for the possibility of an explosive increase in the spread of HIV/AIDS. Vietnam and Indonesia provide examples of delayed epidemics of HIV/AIDS that could also occur in the Philippines.

The Philippines has one of the lowest rates of HIV infection in Asia. Based on available information, the prevalence does not exceed 1%, even among high-risk populations. The report *Monitoring the AIDS Pandemic Network* (2002) declared the Philippines to be a low HIV prevalence country, along with Bangladesh, Hong Kong, Laos, and South Korea. The Joint United Nations Programme on HIV/AIDS (UNAIDS), in its 2002 Epidemiological Fact Sheet, estimated HIV prevalence among the 15-49 year age group at 0.03% (World Health Organization [WHO]-Western Pacific Region, 2001).

In various national and international forums, HIV experts are baffled as to why HIV prevalence has remained low, despite the obvious presence of almost all the ingredients for explosive HIV spread. The current epidemic has been described as “low” and “slow.” There is, however, anticipation that an explosive epidemic will occur, as

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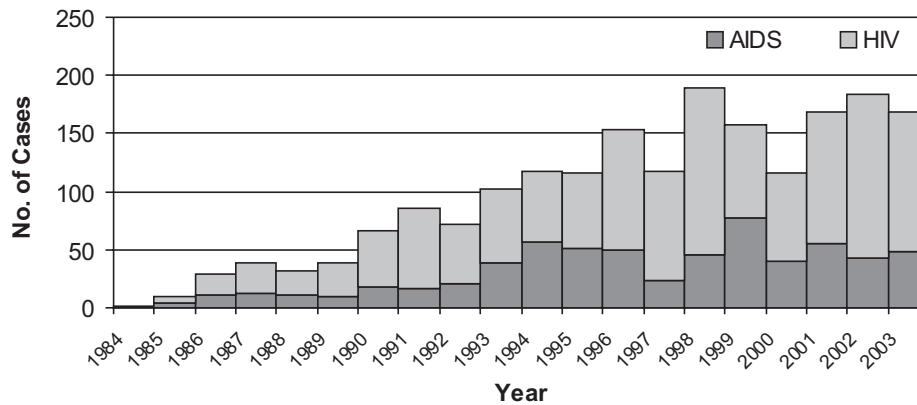


FIGURE 1. Passive reporting of HIV-seropositive subjects to the HIV/AIDS Registry, January 1984-December 2003 ($n = 1,965$)

has happened in other countries in Asia (UNAIDS/WHO, 2003). This article describes the current HIV/AIDS situation in the country and the possible explanations for the current low rate. The response of the government and other sectors in the country to the HIV/AIDS problem is also described. Finally, the article presents the challenges still remaining for the Philippines.

CURRENT STATUS OF THE HIV/AIDS PROBLEM IN THE PHILIPPINES

In 1993 experts on HIV/AIDS projected that by the year 2000 there would be 100,000 HIV/AIDS cases in the Philippines (WHO-Western Pacific Region, 2000). This estimate was based on very limited information available at that time. In 1996, both passive and active HIV surveillance data showed a very low HIV prevalence, and based on available information, the Philippine Department of Health (PDOH) adjusted the estimate to 38,000 HIV infections by the year 2000 (WHO-Western Pacific Region, 2002).

THE HIV/AIDS REGISTRY

To keep track of the epidemiology of HIV/AIDS, the PDOH maintained a passive surveillance system, the HIV/AIDS Registry. The registry continuously logs Western blot-confirmed HIV cases reported by hospitals, laboratories, blood banks, and clinics. A total of 1,965 HIV-positive cases had been entered in the registry from January 1984 to December 2003 (Figure 1). Unfortunately, the number of subjects tested by year cannot be ascertained and, therefore, rates cannot be calculated. Likewise, data input into the registry is limited, because mandatory HIV testing is prohibited by Philippine laws, and voluntary counseling-and-testing services for HIV is limited. Thus, the registry may not be that sensitive to capturing potential HIV cases.

Data from the registry revealed that about four of every five cases acquired HIV through sexual intercourse, particularly heterosexual intercourse. About four of every five cases were in the economically productive age group of 20 to 49 years. Thirty percent of the cases were overseas Filipino workers (OFWs), with 61% being land-based

and 39% being sea-based. The OFWs figured prominently in the registry, particularly because they are tested the most often to satisfy employment requirements set by employers abroad.

Filipinos continue to seek employment abroad. The Philippine Overseas Employment Administration (POEA, 2001) indicates that overseas employment has increased at a rate of 5% annually. The total number of OFWs deployed rose from 660,122 in 1996 to 866,590 in 2001, with an annual remittance to the Philippines of up to \$U.S. 6 billion. This accounts for about 7% to 8% of the Philippine government's gross national product. As of June 2002 the Commission on Filipino Overseas reported that over 7 million Filipinos were deployed in more than 120 countries.

In a study conducted among seamen who had worked abroad and returned to the Philippines, 34% admitted to having sex abroad; of those, 36% had unprotected commercial sex. These high-risk sexual encounters were mostly with female sex workers (FSWs) in countries such as Brazil, Vietnam, and Thailand. Likewise, the same study revealed that 85% of seamen had commercial sex with FSWs and consensual sex with unpaid partners in the Philippines. The threat that the seamen will serve as the bridge for HIV to the general population is highly likely.

HIV SEROLOGIC STUDIES

Because of the limitations inherent in passive surveillance, such as underreporting and delayed reporting and its inability to generate HIV prevalence rates, the PDOH established the HIV Serologic Surveillance (HSS) in 1993. The core groups regularly monitored were both establishment-based female sex workers (EFSWs) and freelance female sex workers (FFSWs), men who have sex with men (MSM), and injection drug users (IDUs) in 10 key cities throughout the Philippines (Figure 2). These cities were selected based on the following guiding principles:

- Known HIV / AIDS cases frequenting the area and engaging in HIV risk practices
- Availability of "at-risk" or sentinel groups
- Presence of an accredited laboratory to perform serologic tests for HIV and syphilis
- Geographical representativeness of the site
- Willingness of on-site staff to conduct regular HSS (National Epidemiology Center PDOH, 2003)

Using the modified lot quality assurance sampling method, a sample size of 300 for each group was calculated to confirm with 95% confidence that HIV seroprevalence is less than 1% if none of the individuals tested positive.

In the past 10 years, the national aggregate HIV prevalence for FSWs and MSM had been less than 1% (Table 1). In most of the surveillance sites, HIV-positive subjects had been detected inconsistently through the years. Thus, it may be concluded that HIV prevalence may still be less than 1%; however, this may not be true anymore among EFSWs in the cities of Quezon and Angeles, where detection of HIV-positive subjects annually was the norm rather than the exception. In these cities, the HIV seroprevalence among EFSWs may be between 1% and 2%.

It is difficult to conclusively determine HIV prevalence among IDUs in the Philippines, since serosurveillance of IDUs is only conducted in Cebu City. Due to the detection of one HIV case in Cebu City in 1996, currently, it cannot be concluded with 95% confidence that HIV seroprevalence among IDUs in Cebu City is still less than 1%.

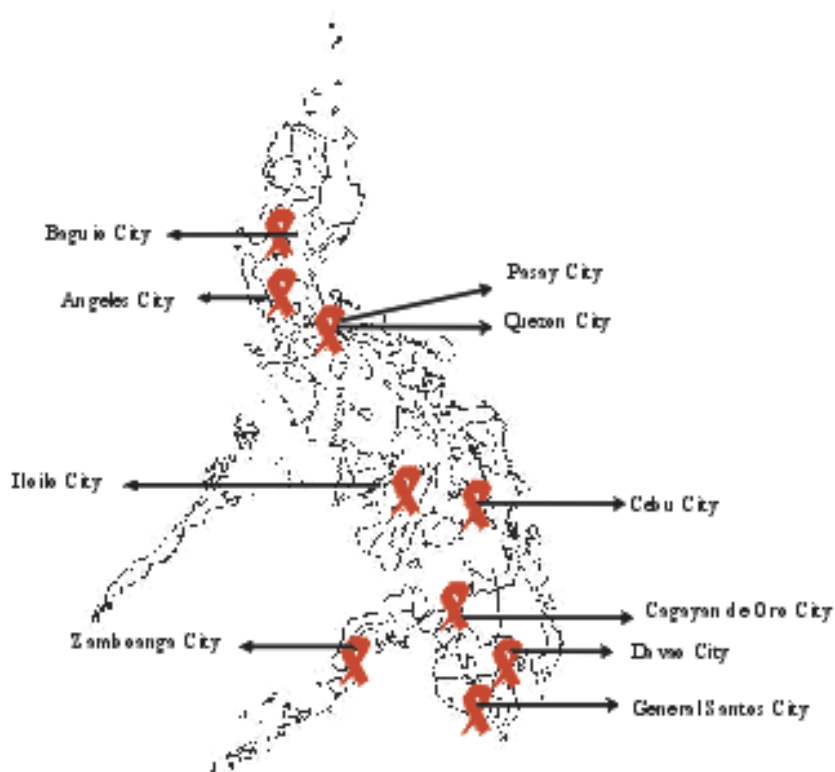


FIGURE 2. HIV sentinel surveillance sites, 1993-2003.

The worst scenario projected for the IDUs in Cebu City would be 1-3% HIV seroprevalence (WHO-Western Pacific Region, 2002).

In addition to the core risk groups for surveillance, seroprevalence studies were also conducted among male military recruits from 1996 to 2001, with sample sizes ranging from 255 to 906. This group was considered as a surrogate for the male general population. No study participant tested positively for HIV or syphilis.

The WHO commissioned one-shot surveys through the United States Agency for International Development (USAID)-funded AIDS Surveillance and Education Project to obtain baseline HIV seroprevalence among subpopulations other than those regularly tested through the HSS. These groups included:

- Returning male overseas Filipino seafarers (Sunas et al., 2002)
- Male truckers in Central Luzon (Mateo, Magpantay, et al., 2003)
- Pulmonary tuberculosis patients in the National Capital Region (Mateo, Pacho, et al., 2003)
- Male prison inmates in the National Capital Region (Mateo, Quizon, et al., 2003).

All study participants in these surveys tested negatively for HIV (Table 2).

TABLE 1. HIV Prevalence by Year in the Philippines, 1993–2003

Year	EFSW			FFSW			MSM		
	Sample	HIV +	%	Sample	HIV +	%	Sample	HIV +	%
1993	615	1	.16	209	0	.00	701	0	.00
1994	1,760	2	.11	707	0	.00	653	0	.00
1995	2,391	3	.12	1,048	0	.00	359	1	.28
1996	3,069	2	.06	1,610	0	.00	720	0	.00
1997	3,027	4	.13	1,999	0	.00	723	1	.14
1998	2,670	5	.19	2,368	1	.04	518	0	.00
1999	3,003	2	.07	2,614	0	.00	457	0	.00
2000	3,002	4	.13	2,834	3	.07	784	0	.00
2001	3,000	3	.10	2,666	0	.00	783	1	.13
2002	3,000	4	.13	2,845	2	.07	1120	0	.00
2003	3,000	1	.03	2,707	0	.00	900	1	.11

Note. EFSWs = establishment-based female sex workers; FFSWs = freelance female sex workers; MSM = men who have sex with men. Nonprobability sampling method employed in study participant selection.

HIV BEHAVIORAL SURVEILLANCE

In tandem with HSS, HIV Behavioral Surveillance (HBS) was established in 1997. Results of the HBS showed a glaring gap between knowledge on HIV/AIDS prevention and control and the practices of high-risk groups across sites. The HBS showed that consistent condom use among the high-risk groups was low, most IDUs still shared injecting equipment, and only a small proportion of “sharers” used bleach and water to clean injecting equipment. The HBS also revealed that the practice of anal sex among MSM is on the rise, and that MSM’s health-seeking behavior, when confronted with sexually transmitted diseases (STDs), is far from ideal. For example, they still resort to consulting their friends rather than seeking consultation from qualified health personnel.

DESCRIPTION OF THE EPIDEMIC AND POSSIBLE EXPLANATIONS

Currently, HIV prevalence in the Philippines is low, and transmission is slow. According to *The 2002 Technical Report of the National HIV Sentinel Surveillance System* (NHSSS) (PDOH, 2003), the possible factors that inhibit the rapid spread of HIV in the Philippines include (a) a network of sex workers that is not as extensive as networks found in countries with high HIV prevalence; (b) low injection drug use, even though prohibited drug use may be high; (c) sex workers tend to have fewer clients per night than those in Thailand and Africa; (d) the availability of social hygiene clinics that regularly examine and treat infected EFSWs, and (e) the early and accelerated multisectoral responses mounted against the threat of HIV/AIDS. The low HIV prevalence may also mean that the virus has not yet reached the critical level in the population to promote rapid spread.

In 2000 the WHO sponsored a consensus workshop, and it was agreed upon by the participants that 13,000 HIV-positive cases was a more realistic estimate (WHO-Western Pacific Region, 2000). In September 2002 another HIV consensus workshop was held, and based on available information, the official estimate for 2001 was 6,000 HIV infections (WHO-Western Pacific Region, 2002). The data used for

TABLE 2. HIV Seroprevalence among Selected Subpopulations

Group	Sampling	Sample Size	Condom Use (%)	Syphilis Rate (%)	HIV Prevalence (%)
Seafarers (Sunas et al., 2002)	Probability	420	55	0	0.0–0.9
Truckers (Mateo, Magpantay, et al., 2003a)	Nonprobability	350	6–12	2	0.0–1.0
Tuberculosis patients (Mateo, Pacho, et al., 2003b)	Probability	387	<1	2	0.0–0.9
Prison inmates (Mateo, Quizon, et al., 2003c)	Probability	380	2	5	0.0–1.0

the estimations were the projected population size and rates of HIV/AIDS infection among commercial sex workers, IDUs, and the general population.

IMPLICATIONS OF THE CURRENT SITUATION

The low prevalence/slow transmission scenario may not continue for long, because the ingredients for an explosive epidemic, including low consistent condom use rate among sex workers (less than 30%), the increasing practice of anal sex, and the high prevalence of STDs, are already present. The most recent estimate for chlamydia and gonorrhea infection among the general population is 7.7% and 1.7%, respectively (Wi et al., 2002). Much more alarming is the 2002 NHSSS report stating that sharing of needles among IDUs in Cebu City may be as high as 77% (PDOH, 2003).

RESPONSE OF THE PHILIPPINE GOVERNMENT

The Philippine government has confronted the problem of HIV/AIDS aggressively. Despite the characterization of the epidemic as “low” and “slow,” the government realized that it needed to act with a sense of urgency and imperativeness for national action. The response of the government draws from the experiences of other countries; for example, that of Vietnam, which is now experiencing high numbers of HIV/AIDS cases but only as recently as 1997 had case numbers comparable to the Philippines. It has been recognized that the underlying conditions for a serious epidemic to explode exist in the country.

A highlight of the response was the enactment of the Philippine AIDS Prevention and Control Act of 1998 (Republic Act No. 8504). This law called for a comprehensive nationwide HIV/AIDS educational and information campaign, full protection of human rights of known and suspected HIV-infected persons, promotion of safe and universal precautions in practices and procedures that carry risks of HIV transmission, eradication of conditions that aggravate spread of HIV infection, and recognition of the role of affected individuals in promoting information and messages about HIV/AIDS.

The law also called for the reconstitution and strengthening of the Philippine National AIDS Council (PNAC). The creation of PNAC is a formalization of the organized multisectoral response of the country. It now is comprised of 26 members representing different national and local government agencies, legislature, medical/health professionals, concerned nongovernmental organizations (NGOs), and the organization of persons affected by HIV/AIDS. The PNAC serves as the central advi-

sory, planning, and policy-making body for the comprehensive and integrated HIV/AIDS prevention and control program.

The PNAC has outlined the framework for the government response to the HIV/AIDS epidemic in its 2000-2004 accelerated medium-term plan (PNAC, 2000). Strategic targets in this plan include the close networking of organizations, institutions, and individuals with PNAC; local governments activating their own HIV/AIDS prevention plans; inclusion of HIV/AIDS information in the secondary and tertiary educational programs; and provision of adequate care and support for those infected with HIV/AIDS. To achieve these goals, the following complementary strategies were formulated: a management and advocacy strategy to create a social environment for sustained HIV prevention, a research and surveillance strategy to understand the HIV epidemic and the factors contributing to its spread, small-scale trials to identify effective interventions among the most vulnerable group, large-scale prevention programs to implement proven effective interventions, and care and support for those who are already infected.

Several government departments have implemented the provisions of the HIV/AIDS laws into their activities. The Department of Education, Culture and Sports, along with the Commission on Higher Education and the Technical Education and Skill Development Authority, have developed HIV/AIDS modules to be integrated into the school curriculum. Workplace education on HIV/AIDS and observance of nondiscrimination have been mandated by the Department of Labor and Employment (2003). The Department of Social Welfare has supported the training of social workers to deal with people living with HIV/AIDS (PLWHAs) (Remedios AIDS Foundation, 2002). Predeparture seminars for overseas workers are required by the Philippine Overseas Employment Agency.

LOCAL RESPONSES

The vital importance of local responses is recognized by leaders in the campaign for HIV/AIDS prevention. The PNAC plan (PNAC, 2000) states that national mobilization means the mobilization of local responses on a nationwide scale. The Philippine HIV/AIDS law (Republic Act No. 8504) stipulates that local governments provide community-based HIV/AIDS prevention, control, and care services and integrate these into their development plans. Examples of local responses include the experiences in General Santos City (Mascardo & Lastimosa, 1998), Negros Occidental (Cristobal & Melocoton, 1998), and Davao City. Functional multisectoral AIDS councils have been established in these cities. These councils involve city governments, health offices, social welfare offices, police, academic institutions, religious groups, youth groups, and NGOs. Each sector's limitation to respond to the HIV/AIDS problem is recognized. Aside from the creation of AIDS councils, local ordinances on STD/HIV/AIDS prevention and control have been enacted in some cities. An important indicator of city government response is the allocation of local funds to STD/HIV/AIDS prevention activities. To date, 18 of 48 cities in the country have active AIDS councils.

One component of the United Nations Development Programme's (UNDP) activities is capacity building of local governments in developing, sustaining, and institutionalizing multisectoral, participatory responses to HIV, and formulating supportive local policy (United Nations Development Program website).

TABLE 3. Activities of 70 NGOs involved in HIV/AIDS in the Philippines

Area of Activity	Number	Percent
Advocacy	55	78.6
Information	54	77.1
Training and education	48	68.6
Research center/library	25	35.7
Care and support for PLWHA	18	25.7
Clinical services	17	24.3
Social/behavioral research	17	24.3
Biomedical research	4	5.7

Note. PLWHA = people living with HIV/AIDS.

NONGOVERNMENTAL ORGANIZATIONS

NGOs have been at the forefront of the Philippines' response to the HIV/AIDS problem. The activities of NGOs vary from information, advocacy, education, and caring for PLWHAs, to behavioral and biomedical research. The Health Action Information Network (2002) reported the activities of 70 NGOs working on HIV/AIDS (Table 3). The majority of these NGOs engage in advocacy (78.6%), information (77.1%), and training and education (68.6%). More than one third have libraries/research centers. About one fourth provide care and support for PLWHAs, including clinical services such as HIV and STD testing, or conduct social/behavioral research. Biomedical research activities, however, are not common among these NGOs.

Many of these NGOs have benefited from capacity-building efforts of other NGOs with support from international donor agencies. The Philippine HIV/AIDS NGO Support Program has assisted many of these NGOs in designing and implementing their prevention and control activities (Alcoreza & Sanial, 1998). At the same time, they have been instrumental in obtaining funding for some of the NGOs' projects (Philippine HIV/AIDS NGO Support, 2002). The Control of HIV/AIDS/STD Partnership Project in the Asia Region has provided capacity building in terms of research and opportunities to attend international training, study tours, and conferences (Tempongko, 2002). International donors include, among others, the UNDP, UNAIDS, the USAID, the Australian Agency for International Development, the German Technical Cooperation, the International HIV/AIDS Alliance, and the David and Lucille Packard Foundation.

A notable development among NGOs is the holding of regional HIV/AIDS conferences in the Visayas (Melocoton, 2002) and Mindanao (Alliance Against AIDS in Mindanao, 2000). This is a clear indication that there are now many active players in the HIV/AIDS arena, even outside of metropolitan Manila.

CHALLENGES

Although some of the responses of the Philippines appear to be effective in controlling the spread of HIV/AIDS, several challenges still confront the country. The Health Action Information Network (2002) has listed several of these and noted that full implementation of the 2000-2004 accelerated medium-term plan has not yet been accomplished. Local government responses are still limited to only those areas that have been traditionally expected to first experience a full-blown epidemic. Although

this has not yet occurred, other less vulnerable localities may feel no urgency to prepare themselves.

There is a need to stem the rise in STD cases. Because of the similarities in the transmission of HIV with STDs, this should remind the authorities that HIV need only be introduced into small but sufficient numbers to start an explosive spread. The experiences in Vietnam and Indonesia (UNAIDS/WHO, 2003) demonstrate that the epidemic can spread quickly. The Philippines needs to be prepared if an explosive outbreak occurs.

Related to the problem of STDs is low condom use, specifically among the younger population that is beginning to be sexually active. Reasons for low condom use should be explored, whether they be lack of knowledge or poor attitudes. There is also the presence of societal constraints, such as the resistance of the Catholic Church to condom promotion. It seems, however, that there may be some ground where these conflicting views of the use of condoms can be reconciled; for example, condoms might be promoted for protection rather than for contraception (Keenan, 2001).

A recent report cited the rising incidence of STDs and low condom use among high-risk groups to be among the factors that characterize 21 localities in the Philippines that have large pools of transient, full-time, part-time, and occasional participants in commercial sex, making them vulnerable to an explosive spread of HIV/AIDS infections (Taguiwalo et al., 2001). It also noted the inadequacies of these localities in responding to these threats, due to the low quality of social hygiene services, the low level of effort to educate those at greatest risk, scarcity or absence of locally institutions prepared to meet the spread, and lack of awareness of this threat and the importance of an early effective response.

A rising number of HIV cases are occurring among overseas workers. There is no effective surveillance of this population, because their infection status is only discovered once they reapply for another work stint abroad. By that time they could have spread the virus to their partners. Because this population has been known to engage in high-risk behaviors outside of the country, these individuals should be encouraged to undergo testing upon their return and to obtain their results immediately so they can protect their partners and seek treatment if they are indeed infected.

Among PLWHAs, however, access to affordable drugs remains a problem. Many turn to NGOs for support. The government should realize this need among this population and help them find ways to secure less costly drugs for HIV.

RECOMMENDATIONS

HIV/AIDS may not have gained a strong foothold in the Philippines as yet. It is imperative, however, that all sectors of society seize the opportunity of acting now rather than acting in the face of a major crisis. Full implementation of the 2000-2004 accelerated medium-term plan should be pursued. Some of the strategies have not yet been fully utilized. Regular HIV surveillance activities should be continued and implemented properly to serve as an early warning of increases in HIV prevalence and to guide decisionmakers in the formulation and prioritization of interventions. In particular, more effective surveillance among overseas workers should be established, and wider surveillance coverage among MSM and IDUs should be implemented. HIV intervention measures such as behavioral change, communication, treatment of STDs, and condom promotion and social marketing should be an integral part of HIV prevention and control plans.

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Update and Projection on HIV/AIDS in Taiwan

Shiing-Jer Twu, Yen-Fang Huang, An-Chi Lai, Nai-Ming, and Ih-Jen Su

The HIV/AIDS epidemic in Taiwan started in 1986, with 5,221 cases of HIV infections, 1,596 cases of AIDS, and 911 deaths reported through 2003. National surveillance data indicate that men who have sex with men accounted for 48.2% of HIV infections, followed by heterosexual men (33.8%) and heterosexual women (6.1%). Only 353 (6.8%) of all HIV cases are females. The average age of HIV-infected persons, AIDS cases, and deaths was 31.2, 36.2, and 39.0 years, respectively. The incidence of HIV infection has increased by approximately 15% every year since 1997. The continuing epidemic will likely burden the national health care system and may result in an estimated socioeconomic loss of U.S.\$1.6 billion in 2010, as 15,125 HIV infections and 1,420 deaths from AIDS are projected. To respond to the HIV/AIDS epidemic in Taiwan, the government has been working with nongovernmental organizations to promote HIV testing, conduct various education programs, and reach out to high-risk groups. HIV/AIDS patients are linked to medical care and provided with free highly active antiretroviral treatment. The main challenge is to reduce HIV-related stigma. Prevention focused on preventing further transmission of HIV by seropositive persons to others is urgently needed in fighting the HIV/AIDS epidemic.

AIDS was first reported by Michael Gottlieb et al. (1981). Despite the incredible progress that has been made over the past 20 years of intense research and prevention efforts, HIV/AIDS still remains a major threat in many countries. Worldwide, an estimated 69 million cumulative cases of HIV infection and 27 million deaths were attributed to HIV/AIDS by the end of year 2002 (UNAIDS/World Health Organization [WHO], 2002). These astounding statistics have led UN Secretary-General Kofi Annan to make the statement, “No war on the face of the earth is more destructive than the AIDS pandemic” (United Nation’s special session on HIV/AIDS, 2001).

Although Africa currently has the largest number of people living with HIV, South Asia and Southeast Asia are the regions where HIV is spreading fastest

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(UNAIDS/WHO, 2002). Several countries in this region suffer from low per capita incomes, dramatic inequities in income distribution, and poor health care infrastructures, making it difficult or impossible to provide high-quality medical care to those who need it. Taiwan, an island in Asia with a population of 23 million, has transitioned from an underdeveloped country to a developing country. Compared with other Asian countries, the advances in economic development and in the health care system have protected Taiwan from a major HIV/AIDS crisis. Here we provide an update on HIV/AIDS in Taiwan, share its experiences in combating the spread of HIV/AIDS in Taiwan, and outline challenges remaining.

HIV/AIDS EPIDEMIC IN TAIWAN

The first AIDS case in Taiwan was reported in December 1984 in an American physician who developed symptoms in Thailand but was diagnosed as a confirmed AIDS case while in transit in Taiwan (Tanphaichitra et al., 1985). The first local AIDS patient in Taiwan, a man who had sex with men, was reported in 1986 (Lin, Huang, Kao et al., 1987). The first HIV-positive hemophilia patient was infected in 1984 and identified 2 years later. The first female HIV case caused by a blood transfusion was detected in 1987. The first HIV infection due to intravenous drug abuse (IVDU) was reported in 1988. Both of the first male and female infections due to heterosexual transmission were reported in 1988. The first infant infected by its mother was discovered in 1989.

AIDS prevention work was launched in Taiwan by the AIDS Advisory Committee in 1985. Since then, screening for special groups such as military draftees, prison inmates, and foreign workers has been mandated. All blood and tissue donation has been screened since 1988 by sensitive ELISA testing. The nationwide surveillance system was established in December 1990. Voluntary HIV testing is available in hospitals. Physicians are asked to report HIV/AIDS cases to the Department of Health. All HIV/AIDS cases are then reported to the Taiwan's Center for Disease Control (CDC).

According to the nationwide surveillance data, the incidence of reported HIV and AIDS cases has increased exponentially in the past 20 years. It took 6 years (1984-1989) to accumulate the first 100 cases. Unfortunately, the frequency of HIV/AIDS cases increased significantly after 1992. The number of new HIV infections was over 100 cases annually, and more than 800 cases were reported in 2003.

As shown in Figure 1, there was a greater increase in reported HIV cases in 1991 (153%) compared with previous years. This sharp increase is partially due to promotions to encourage HIV testing by two nongovernmental organizations (NGOs) during that period. The rate of new cases reported has slowed down since 1992 (see Figure 1). However, the annual incidence rate of reported HIV infection among the general population was $1.6/10^5$ in 1997, then increased to $3.7/10^5$ in 2003, with an average increase of 15% per year. In 2003, the rate of reported HIV infections (9%) had decreased because, between April and July, the SARS epidemic in Taiwan prevented people from going to the hospitals, where about two thirds of HIV cases are diagnosed. The incidence of reported AIDS cases shown in Figure 1 also increased exponentially from the mid-1980s to 1996. Since 1997, about 150 new AIDS patients are reported each year, despite the continued increase in HIV cases reported. The steady prevalence of AIDS since 1997 is mainly due to the availability of highly active antiretroviral treatment (HAART) for treating HIV patients.

By the end of 2003, there was a total of 5,221 cumulative HIV cases, of which 2,714 were currently living with HIV, 1,596 had developed AIDS, and 911 had passed

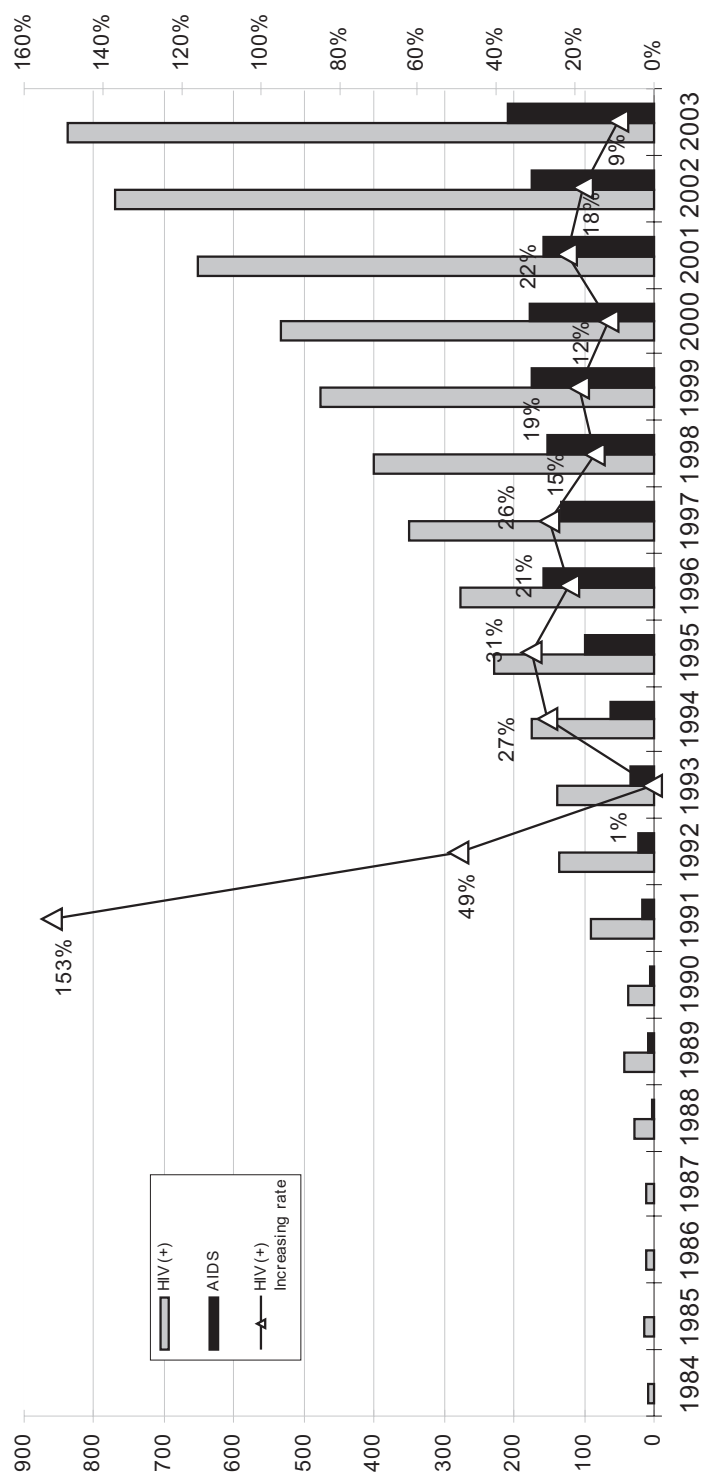


FIGURE 1. Reported HIV/AIDS cases in Taiwan, 1984–2003.

TABLE 1. The Age Distribution of HIV, AIDS Cases, and Death in Taiwan (1984–2003)

Age	Number of HIV Infected ^a	Number of AIDS Cases	Number of Deaths
0–9	23	2	1
10–19	227	15	8
20–29	1919	306	135
30–39	1759	655	328
40–49	685	327	201
50–59	348	167	124
60–69	166	90	76
70–79	69	29	33
>80	9	5	4
Unknown	16	0	1
Total	5221	1596	911
Mean age	31.2	36.2	39.0

^aIncluding AIDS cases.

away. The age distribution presented in Table 1 shows that the age group with the most HIV cases reported is 20–29 years (36.8%), followed by 30–39 years (33.7%), and the average age of HIV-infected persons is 31.2 years. The age group with the most AIDS cases reported is 30–39 years (41.0%), followed by 40–49 years (20.5%). The mean age of AIDS patients is 36.2 years. The age distribution of deaths is similar to the age distribution of AIDS. The average age of death due to AIDS is 39.0 years. There is a difference of 5 years between the average age of HIV-infected persons and AIDS cases. This difference cannot be simply attributed to the incubation period between being infected with HIV and progression to AIDS, because delayed diagnosis is very common in Taiwan. The difference of 2.8 years between AIDS disease to death is relatively short, because many AIDS cases are not identified until they are at the advanced disease stage, and HAART was not available until 1997. It is likely that the period from HIV infection to AIDS and from AIDS to death will be prolonged in the future when HAART is widely available for treating patients (Hung, Chang, et al., 2000).

Men who have sex with men (MSM) accounted for 48.2% of HIV infections, followed by heterosexual men (33.8%), heterosexual women (6.1%), injection drug users (2.2%), and hemophiliacs (1.0%). Although every blood donation has been screened since 1988 by sensitive ELISA testing, 12 patients (0.2%) were infected by a blood transfusion because the HIV antibody was not detected in the window period. About 9% of HIV cases refused to provide information on risk factors. From our experience, it is very likely that most are MSM, because homosexual behavior is highly stigmatized in Taiwan, and many MSM would only admit their homosexual orientation when they developed AIDS. Some MSM would not identify themselves as homosexual; thus, the risk factor of heterosexual transmission is likely to be overestimated. Most heterosexual infections were due to having sex with sex workers when visiting southeastern Asian countries; however, only 38% of HIV-infected persons admitted to this. Among 141 HIV-infected couples, the husband was usually infected first and then transmitted HIV to his wife. There have been nine newborns infected by their mothers.

Some studies have been conducted among individuals with high-risk behaviors (Cheng et al., 1993). The highest HIV prevalence rate (5-10%) was found in MSM, followed by individuals with sexually transmitted diseases (STDs) at a prevalence of 309/10⁵. The prevalence of HIV infection is 112/10⁵ among prison inmates, 55.2/10⁵ among sailors, 43.6/10⁵ among female sex workers, and 6.3/10⁵ in first-time blood donors.

PROJECTION OF FUTURE HIV/AIDS CASES AND ITS IMPACT

Thus far, the number of HIV infections in Taiwan remains relatively low compared with some Asian countries and other parts of the world. However, the incidence has shown an exponentially increasing pattern similar to that in other countries (Chen & Chuang, 2002). In recent years, the number of reported HIV infections increased by about 15.6% each year (regression model: HIV cases = $0.0672x^3 + 0.8483x^2 - 0.752x - 2.625$, $R^2 = 0.9979$; $x = \text{year}-1983$). The number of deaths from HIV/AIDS remained relatively stable after the introduction of HAART in 1997 (regression model: death = $30.247\ln(x) - 19.725$, $R^2 = 0.6215$; $X = \text{year}-1983$). Because of the continuing spread of HIV and the successful treatment of HIV/AIDS patients, the survival rate has also increased (regression model: cumulative survival = $1.2421x^3 - 18.851x^2 + 99.413x - 131.95$, $R^2 = 0.9994$; $x = \text{year}-1983$). There is no doubt that HIV-infected persons benefit from HAART and live longer. If the rate of HIV infection continues to rise, however, Taiwan will face tremendous socioeconomic burdens by the year 2020.

Using multiple regression models, we estimated HIV incidence, cumulative HIV survival, HIV-related deaths, and the potential economic impact in the years 2010 and 2020 (Figure 2). The socioeconomic burden includes the medical expenses for caring the increasing number of patients who survive and the loss of work time of infected persons due to illness. According to the Taiwan's Bureau of National Health Insurance, the average annual medical expense of HIV patients is U.S.\$10,574 per person. Assuming that all the HIV patients receive treatment and that there is no change in the cost of treatment provided to patients in the future, the estimated medical expenses from 1984 to 2010 will total U.S.\$859 million, and will increase to U.S.\$3.68 billion by 2020. In addition, we estimate U.S.\$9,090 lost productivity of each HIV patient per year. Adding the loss of productivity to medical expenses, we estimate a cumulative loss of U.S.\$1.60 billion by 2010 and U.S.\$6.84 billion by 2020. The projected socioeconomic loss is likely to be underestimated, because the loss would be about double if the underreported cases were included (Hsieh et al., 2002).

In addition to the socioeconomic impact, HIV/AIDS poses other problems, including extra stress on people who are taking care of family members living with HIV/AIDS, emotional turmoil of losing loved ones to AIDS, and instability in families as parents die from AIDS and leave children behind. Given the negative impact of the HIV/AIDS epidemic on the society as a whole, it is important to prevent new HIV infections and to identify HIV-infected individuals early.

TAIWAN'S HIV/AIDS CONTROL POLICY AND PREVENTION STRATEGIES

To fight the HIV/AIDS epidemic, the government in Taiwan has taken many steps, including implementing nationwide surveillance systems, promoting HIV testing, linking HIV patients with care, and providing free treatment to HIV/AIDS patients. In 1985, AIDS prevention work was formally launched by the AIDS Advisory Commit-

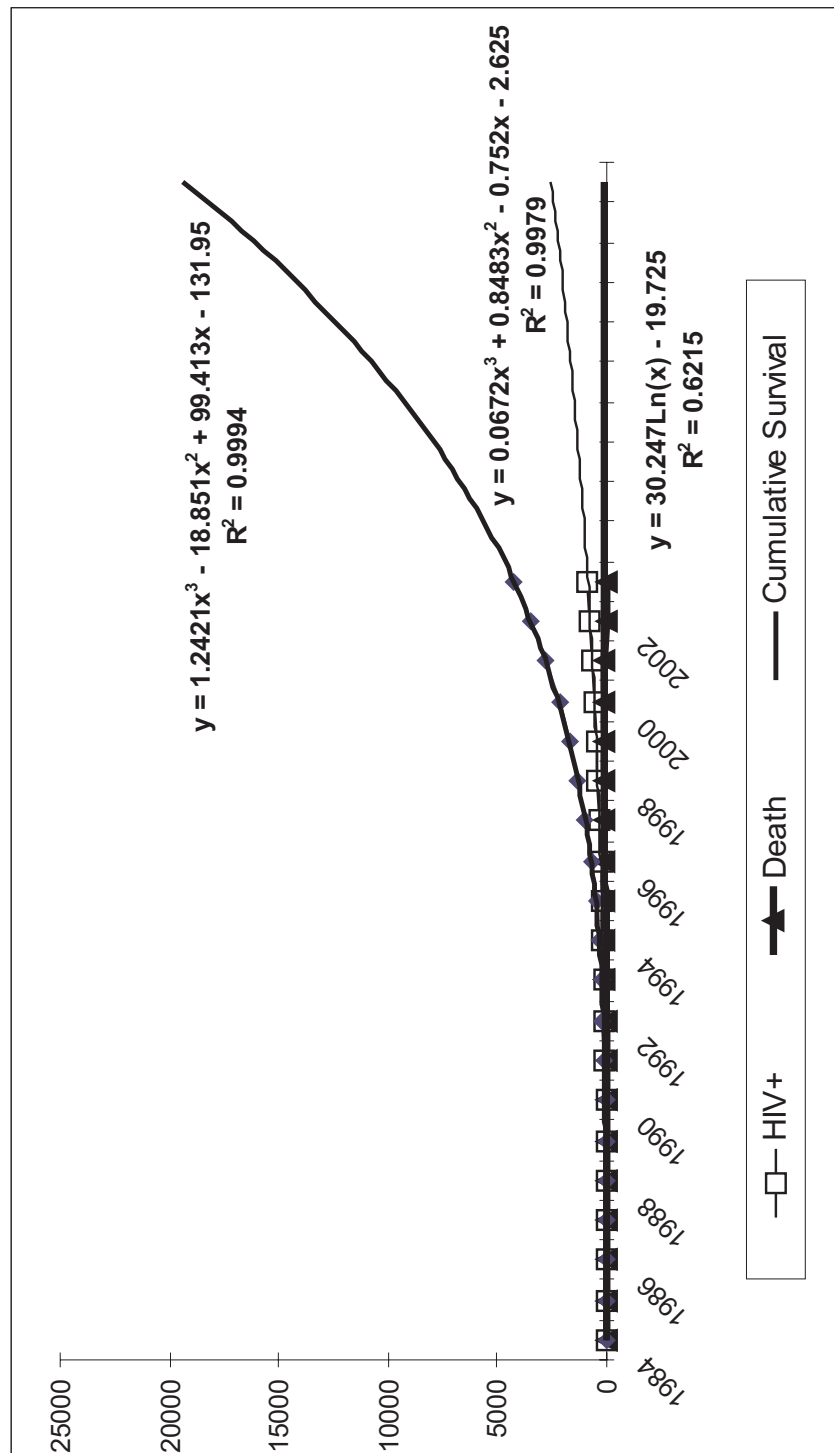


FIGURE 2. Regression of HIV infection (excluding hemophiliacs), survival, and death, 1984–2020.

tee, which began promoting a number of educational programs and setting up an official documentation system. Several major regulations regarding AIDS prevention were passed in December, 1990. They included: (a) enhancing protection of confidentiality for HIV/AIDS patients; (b) encouraging people to get tested by means other than blood donation; (c) asking doctors to report HIV patients to local health bureaus, which send all the cases to Taiwan's CDC; (d) conducting health education with sex workers; (e) making condoms available in hotels and bathhouses; (f) mandating HIV testing for military draftees, prison inmates, blood and tissue donors, sex workers, and immigrants; and (g) penalizing people who intentionally infect others. These regulations proved to be effective HIV/AIDS preventions, as more people are willing to test for HIV due to the protection of confidentiality. Thus, case detection has increased, surveillance data are more complete, and sex education has reached high-risk groups.

In 1992 two NGOs, the Light of Friendship AIDS Control Association of Taiwan and the Taiwan AIDS Society, were established. These two NGOs have actively promoted HIV testing, which may partially contribute to the higher number of HIV cases reported in 1992. In 2003, there were 23 NGOs working on HIV/AIDS preventions.

To further promote HIV testing and education, conduct basic HIV research, and provide medical care to HIV/AIDS patients, the AIDS Advisory Committee implemented the Initial Plan for AIDS Prevention and Treatment from 1994 to 1996, and the Second Five-Year Plan for HIV/AIDS Prevention and Treatment from 1997 to 2001. However, the increase of HIV infection rates remains at approximately 15% per year. The AIDS Prevention Committee was established in 2002 by the Executive Yuan. The committee is comprised of 12 ministers and is chaired by the vice premier. Each ministry has set up its own AIDS control committee to launch a series of programs, but they work together closely to organize several awareness events and make public announcements. The committee oversees the Third Five-Year Plan for AIDS Prevention and Treatment that started in 2002, with a primary focus on more aggressive HIV/AIDS prevention.

Some prevention activities are summarized below:

PRIMARY PREVENTION: PUBLIC EDUCATION

Many health education programs have been conducted, educational materials have been designed for and tailored to different groups, and mass media has been extensively used for promoting HIV/AIDS education. On World AIDS Day in December, a variety of activities are organized throughout the country. The government provides NGOs with funds to organize education programs for sex workers, homosexuals, and juvenile delinquents. HIV information hotlines have been set up by the Department of Health, local health bureaus, and designated hospitals to respond to public inquiries. Several other services such as the Master Chang Line, the Life Lines, and the Mackay Safety Line also provide HIV counseling.

The government and NGOs work together to reach out to the gay community, distribute HIV/AIDS education materials in gay venues, and provide free HIV testing, counseling, and condoms at gay bathhouses, gay bars, and parks where gay men gather. To reach out to other high-risk groups, HIV/AIDS education programs are conducted at halfway centers and adolescent detention centers, peer education programs for sex workers are implemented, and HIV testing, counseling, and condoms are offered at pubs, bars and massage parlors. To educate the general public, the government and NGOs conduct HIV/AIDS education courses and speeches at schools,

TABLE 2. Active and Passive Surveillance of HIV Infection in Taiwan (1984–2003)

Screening Sources	Test Number	Number of HIV-Infected ^a	1/100,000	Number of AIDS	1/100,000	AIDS/ HIV
Active surveillance	25,262,441	786	3.11	112	0.44	14.2%
Blood Centers	21,885,162	484	2.21	72	0.33	14.9%
Military Draftees	2,405,282	124	5.16	19	0.79	15.3%
Inmates	971,997	178	18.31	21	2.16	11.8%
Passive surveillance	2,449,156	3,728	152.22	1,256	51.28	33.7%
Hospitals assigned by Department of Health	2,449,156	3,728	152.22	1,256	51.28	33.7%
Other	3,387,690	1136	33.53	264	7.79	23.2%
Total	31,099,287	5650	18.17	1632	5.25	28.9%

^aIncluding AIDS cases.

train peer educators to carry out HIV programs at schools, and use movie stars as advocates in mass media campaigns to promote HIV/AIDS education.

SECONDARY PREVENTION: EARLY DIAGNOSIS OF INFECTED PATIENTS AND LINKING PATIENTS TO CARE

Identifying HIV cases is important for HIV prevention, as many HIV-infected persons decrease their behaviors that may transmit HIV to others after learning of their seropositive status (Higgins et al., 1991; Weinhardt, Carey, Johnson & Bickham, 1999; Wolitski, MacGowan, Higgins & Jorgensen, 1997). Early diagnosis of HIV infection allows the majority of HIV-seropositive persons to be successfully treated with proper medical care, which extends their active and productive life for decades. Linking HIV-infected persons to medical care and promoting adherence to antiretroviral therapy may reduce HIV transmission rates by lowering the viral load in infected persons.

The government has been actively screening military draftees, prison inmates, and foreign workers since 1985. Although there is no mandatory HIV testing for pregnant women, they receive HIV/AIDS education pamphlets and are encouraged by their obstetricians to undergo a free HIV test during prenatal care. Screening of all blood and tissue donations started in 1988. Twenty-seven AIDS hospitals in Taiwan offer voluntary HIV testing. Eight of these hospitals provide anonymous HIV testing on-site and through the mail.

Mandatory screening reveals a relatively low detection rate ($3.11/10^5$): $2.21/10^5$ for blood donation screening, $5.16/10^5$ for military draftees, and $18.3/10^5$ for prison inmates. On the other hand, anonymous testing is the most efficient, with a detection rate of $152.2/10^5$. However, regular screening of certain groups is more likely to detect HIV infection earlier in the course of disease than voluntary HIV testing. More people identified through voluntary testing (33.7%) than through mandatory screening (14.2%) were symptomatic for AIDS, reflecting that many of those seeking testing already had symptoms (Table 2). The rate of developing AIDS among patients detected by mandatory screening is 2.98 per 100 person-years, which is much more rapid than the rate among those detected by voluntary testing (9.74 per 100 person-years).

Pretest counseling is offered before collecting specimens. Specimens are tested by ELISA, then retested by a second ELISA if the first result is positive. Western blotting is

used to confirm positive test results if both ELISA tests are positive. Persons with a confirmed diagnosis of HIV infection receive posttest counseling. Patient information, including name, identification number, birth date, gender, home address, date of diagnosis, and risk factors, is reported to the local Department of Health and Taiwan's CDC, except from anonymous testing sites. The local health department is responsible for providing case management to HIV-infected persons and conducting contact tracing. An HIV-positive patient, once diagnosed with AIDS, must be reported again by the hospital to Taiwan's CDC. Every HIV/AIDS patient is regularly followed up by 27 special hospitals that offer AIDS care, and by the Taipei Venereal Disease Center.

All infected persons are provided with free medical care through the National Health Insurance Program. After informed consent, all HIV/AIDS patients are given various free antiretroviral treatments (e.g., AZT, DDC, DDT), depending on their condition. Since 1997, HAART has been used to treat patients. Patients' CD3, CD4, CD8, and viral load levels are closely monitored during treatment (Hung, Chen, Hsieh, Sheng, & Chang, 2000). HAART has proven to be effective in prolonging the duration and quality of life for HIV/AIDS patients in Western countries (Sepkowitz, 2001; Watt & Burnouf, 2002). The study by Hung, Chen et al. (2000) in Taiwan also showed that morbidity and mortality declines each year among AIDS patients treated with HAART, even in patients with advanced disease stages.

There are 27 hospitals providing free hospice care for AIDS patients with advanced disease stages. One hospice care center was set up in 2000 for AIDS patients with terminal illness. Between 1984 and 2003, 657 of Taiwan's 1,596 AIDS patients died of AIDS, and 254 died of other causes. There has been a total of 218 admissions to the halfway center and hospice care centers. Fifteen patients died when they were in the hospice care center.

Physicians, nurses, health administrators, laboratory technicians, and social workers working at the AIDS hospitals and the hospice center are trained to provide good-quality clinical services for HIV/AIDS patients. A total of 286 science research projects on HIV infection have been conducted through the end of 2003. These projects focused on epidemiological investigations of certain risk groups, clinical research, and the development of laboratory techniques. However, there are no prevention programs for persons living with HIV/AIDS to others at this time.

CHALLENGES

The stigma associated with HIV/AIDS and homosexuality is still prevalent in Taiwanese society. Sometimes HIV/AIDS patients are rejected by their families, fired by their employers, or expelled from schools. Both the government and NGOs in Taiwan have been making great efforts in recent years to promote HIV testing and HIV/AIDS education. However, many people are still apprehensive about learning their serostatus and are not willing to be tested, even though some of them may be engaging in HIV risk behaviors. Like many other countries, underreporting of HIV infection remains a serious concern for AIDS control (Barchielli et al., 1995). The underreporting of HIV cases in Taiwan has decreased from an estimation of tenfold in the 1980s to about twofold in 2002 (Hsieh et al., 2002). It is still worrisome that half of potentially HIV-infected persons are not yet identified and linked to care. Delays in HIV diagnosis cause missed opportunities to prevent the unintentional spread of HIV and to initiate HIV treatment before the virus significantly damages the immune system.

There is no silver bullet for eliminating HIV-related stigma. Changing a social norm usually takes time. Continued efforts to educate the public about HIV/AIDS, reach out to high-risk groups, and work closely with HIV-infected persons to prevent new infections are needed. Each infected person has the ability to prevent new HIV cases and can thus play an important role in fighting the HIV/AIDS epidemic. Prevention focused on preventing further transmission of HIV by seropositive persons to others should be given a high priority.

CONCLUSION

To fight the HIV/AIDS epidemic in Taiwan, the government has been working closely with NGOs to promote HIV testing, reach out to high-risk groups, and educate the general public through various HIV/AIDS education programs. HIV/AIDS patients are provided with free medical care and case management. The increase in HIV infections (15% per year) raises serious concerns about the increased burden on the national health care system, which can cause huge socioeconomic losses in the next 10 years if more effective prevention interventions are not implemented. The HIV/AIDS epidemic in Taiwan is not as devastating as it is in some Asian countries and other parts of the world. We hope that our experience in controlling the HIV/AIDS epidemic provides some helpful information to other countries facing the same fight. Nonetheless, constant vigilance will be necessary to assure that the rate of HIV infections remains low in the future.

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Current HIV/AIDS/STI Epidemic: Intervention Programs in Cambodia, 1993-2003

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Mean Chhi Vun, Seng Suth Wantha, Pamina M. Gorbach,
and Roger Detels

In the past decade, Cambodia has been experiencing the most serious HIV/AIDS epidemic in Southeast Asia. With full support from the top policy makers, good leadership in program management, and the commitment of the public health program officers, the HIV/AIDS prevention and care program in Cambodia has been successful, despite its resource constraints. Available data from surveillance and other studies in Cambodia indicate a downward trend in HIV prevalence and incidence among high-risk groups, an increase in condom use among commercial sex workers and their clients, and a declining trend of sexually transmitted infections. Although these findings reflect the success of programs to prevent transmission, the incidence of HIV infections is still high in high-risk populations, and transmission among the general population continues. Cambodia therefore needs to increase its efforts to reduce transmission. More research and prevention programs should focus on the vulnerable populations. HIV/AIDS modeling indicates that Cambodia needs to prepare for increasingly large numbers of AIDS patients who will require expensive medical care.

More than 13 years have passed since the recognition of the first HIV-infected person in Cambodia through serologic screening of blood donors in 1991 (National Center for HIV/AIDS, Dermatology and STDs Control [NCHADS]; Phalla et al., 1998). The HIV/AIDS epidemic has spread to all layers of society in Cambodia, causing it to have the highest national prevalence of HIV in the adult population (15-49 years) in Asia (WHO/UNAIDS, 2002). From early in the HIV epidemic, the Cambodian Ministry of Health made a strong political commitment to the prevention of HIV/AIDS and the care of persons living with HIV/AIDS. A number of relatively successful intervention

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programs have been implemented. In 2002 the Joint United Nations Program on HIV/AIDS (UNAIDS) recognized that Cambodia's epidemic appeared to be stabilizing (WHO/UNAIDS, 2002).

The goal of this article is to describe all the available HIV/AIDS and sexually transmitted infection (STI) epidemiological data in Cambodia, lessons learned from prevention and care programs implemented by the NCHADS in Cambodia, and concerns for future control of the epidemic and care for AIDS patients.

PAST, CURRENT, AND FUTURE EPIDEMIOLOGICAL SITUATION

Epidemiological data on HIV/AIDS in Cambodia are derived mainly from the HIV/AIDS Surveillance Program. This program has three major data sources: the HIV Sentinel Surveillance Program, the Behavioral Surveillance Survey (BSS) Program, and the Sexually Transmitted Diseases Surveillance (SSS) Program. The HSS was conducted annually to estimate the HIV prevalence in different sentinel groups, and was used to monitor the trend of the epidemic and to provide guidance and evaluation of the intervention program. The BSS was also conducted annually to complement the HSS, because behavioral indicators can be used as one of the early indicators of successful intervention programs. Behavioral data were also used to perform consistency checks with the findings from the HSS. The SSS was also used to monitor the success of the intervention program. STIs provide a useful biological marker of change in sexual behavior, because their relatively short duration reflects more current sexual activity than HIV does. High levels of STIs are therefore a warning system that high levels of sexual mixing are continuing, whereas lower rates of STIs may reflect improvement in the quality of STI care, better provision of services, or changes in risk behavior (UNAIDS and WHO Working Group, 2000).

HIV SENTINEL SURVEILLANCE

To date, seven rounds of the HSS have been conducted. Initially, the program selected nine provinces as sentinel sites. Subsequently, the sentinel sites have been expanded from year to year, in an effort to achieve a representative sample for the entire country. The latest HSS results in 2002 showed that the prevalence was highest (28.8%) in brothel-based commercial sex workers (CSWs) and lowest (2.8%) among pregnant women attending antenatal clinics (ANCs). The prevalence among non-brothel-based (indirect) commercial sex workers (IDSWs) was almost half of that in CSWs (14.8%). Police personnel had a prevalence of 3.1% (NCHADS, 2002a). Figure 1 shows the national trends of HIV prevalence for pregnant women and police in urban areas from 1997 to 2002 (only 18 provinces were included for trend analysis), and Figure 2 shows the national trends of HIV prevalence among CSWs and IDSWs in two major age groups (under 20 years and 20 years or older) from 1998 to 2002. These groups are subdivided into two groups, because the under-20 years group provides a rough estimate of incidence. This is because this younger group has had sexual exposure for a limited number of years. The trend among IDSWs was determined only for beer promotion girls, because they are the only subgroup for which data were consistently collected from 1998 to 2002 (NCHADS, 2002a).

There was a downward trend in each of these groups, except for the ANC group, which remained at essentially the same level.

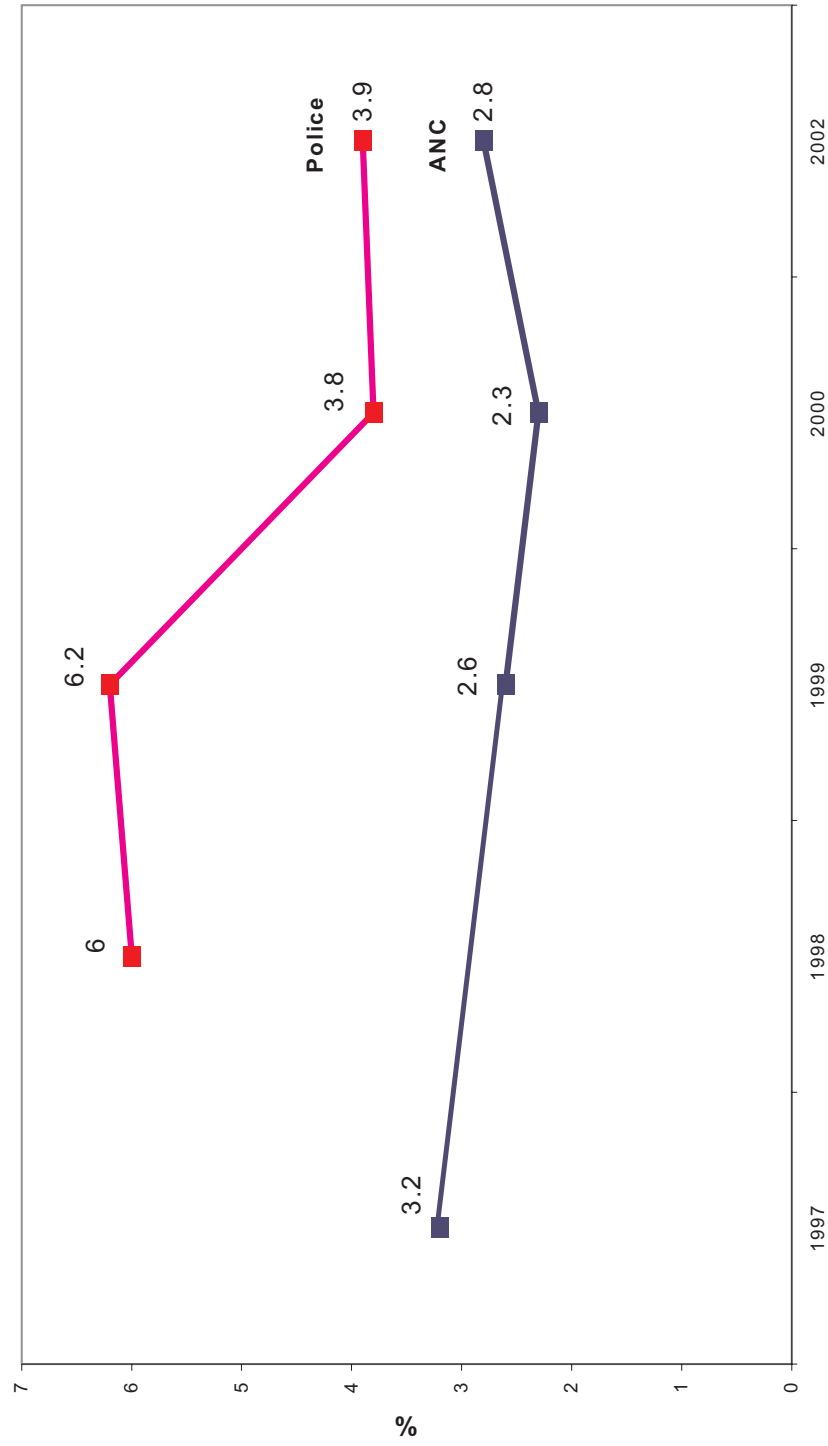


FIGURE 1. The trend of HIV prevalence among antenatal clinic attendees (ANCs) and police personnel in Cambodia, 1997-2002.

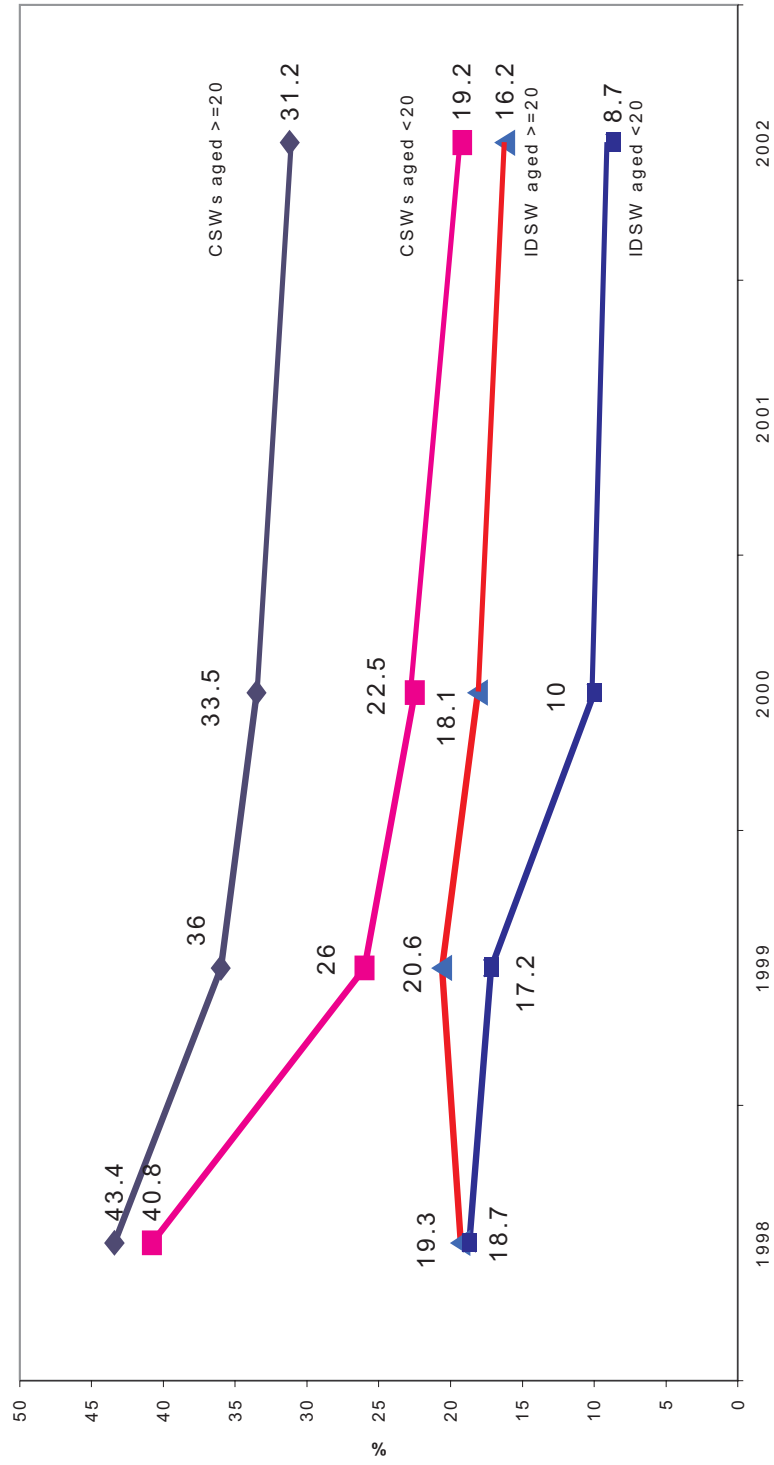
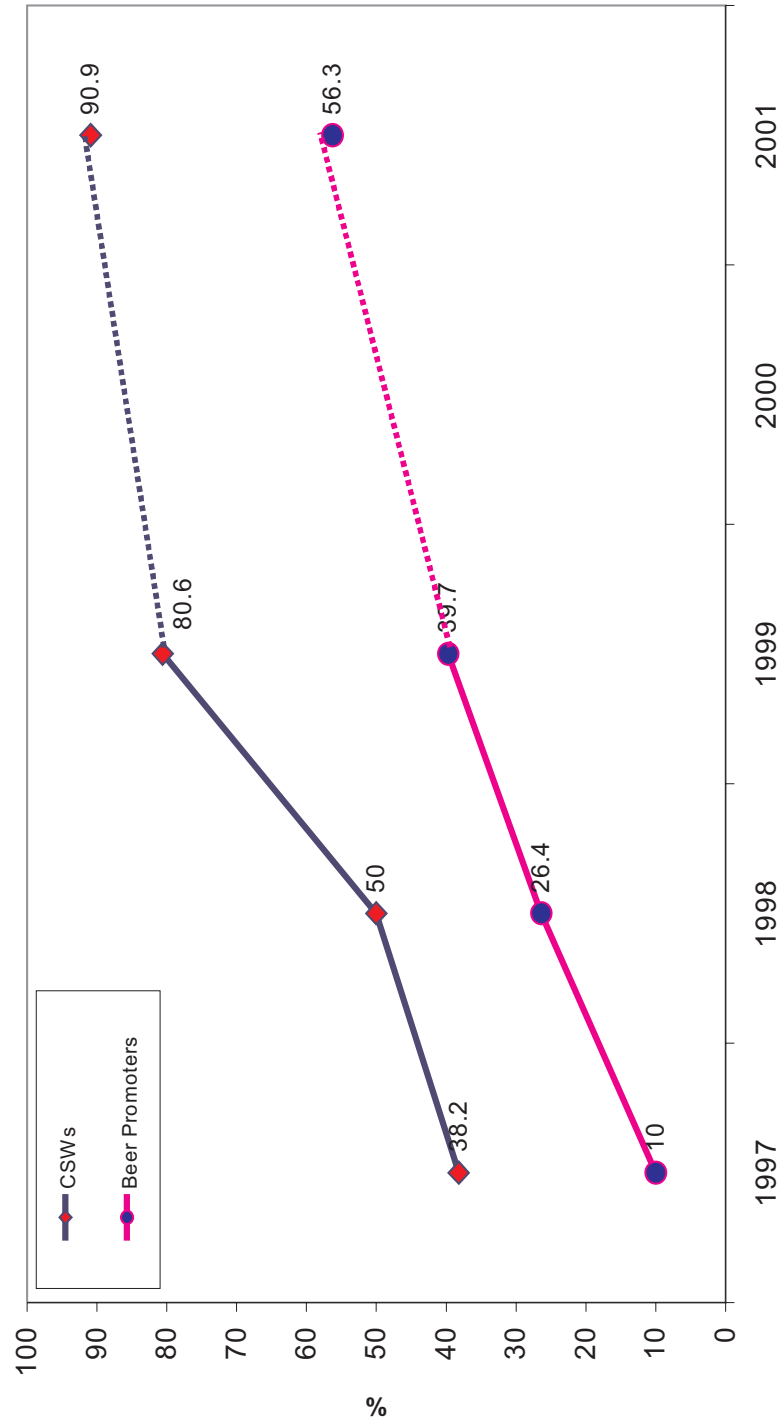


FIGURE 2. The trend of HIV prevalence among commercial sex workers (CSWs) and indirect commercial sex workers (IDSWs) in Cambodia, 1998-2002.



Note: For CSWs, condom use was specified "in past week". For beer promoters, condom use was specified "in 3 months".

FIGURE 3. The trend of consistent condom use among female sex worker groups, 1997-2001.

BEHAVIORAL SURVEILLANCE SURVEY (BSS)

By 2001 Cambodia had conducted five rounds of BSS in the five major provinces: Phnom Penh, Sihanouk Ville, Battambang, Siem Reap, and Kampong Cham, including a household male survey in 2000. The female risk groups include CSWs and IDSWs (beer promotion workers). Later on, karaoke women were included in the BSS. The male group consists of military personnel, police, and motor-taxi drivers.

Analysis of the trend of sexual risk behaviors in different sentinel groups in the last 5 years provides a good picture of the change in the pattern of risk behaviors in Cambodia. Consistent condom use with different partners and numbers of partners was used as indicator of behavior change, although many other variables are also included in the BSS system. Over the past 5 years, reported consistent condom use has dramatically increased in both CSWs and IDSWs (Figure 3). CSWs reported a 138% increase in consistent condom use between 1997 (38.2%, 103/245) and 2001 (90.9%, 521/565), and IDSWs reported a steady upward trend resulting in a 435% increase between 1997 (10%, 18/122) and 2001 (56%, 90/163) (Gorbach, Sopheab, BunHor, & Saphonn, 2002; NCHADS, 1998a, 1999, 2000a; Sopheab, Phalkun, Leng, Wantha, & Gorbach, 2000). The same pattern of behavior change has also been observed in the military group, motor-taxi drivers, and policemen, although the increase was less in the latter two groups (Figure 4).

Over the past 5 years, there has been a steady downward trend of buying commercial sex services among these men. The BSS indicated a significant decline in buying commercial sex services, from 71.8% of police, 81.6% of military, and 52.4% of motor-taxi drivers in 1997, to 32% of police, 32.9% of military, and 18% of motor-taxi drivers in 2001 (Gorbach et al., 2002; NCHADS, 1998a, 1999; 2000a; Sopheab et al., 2000).

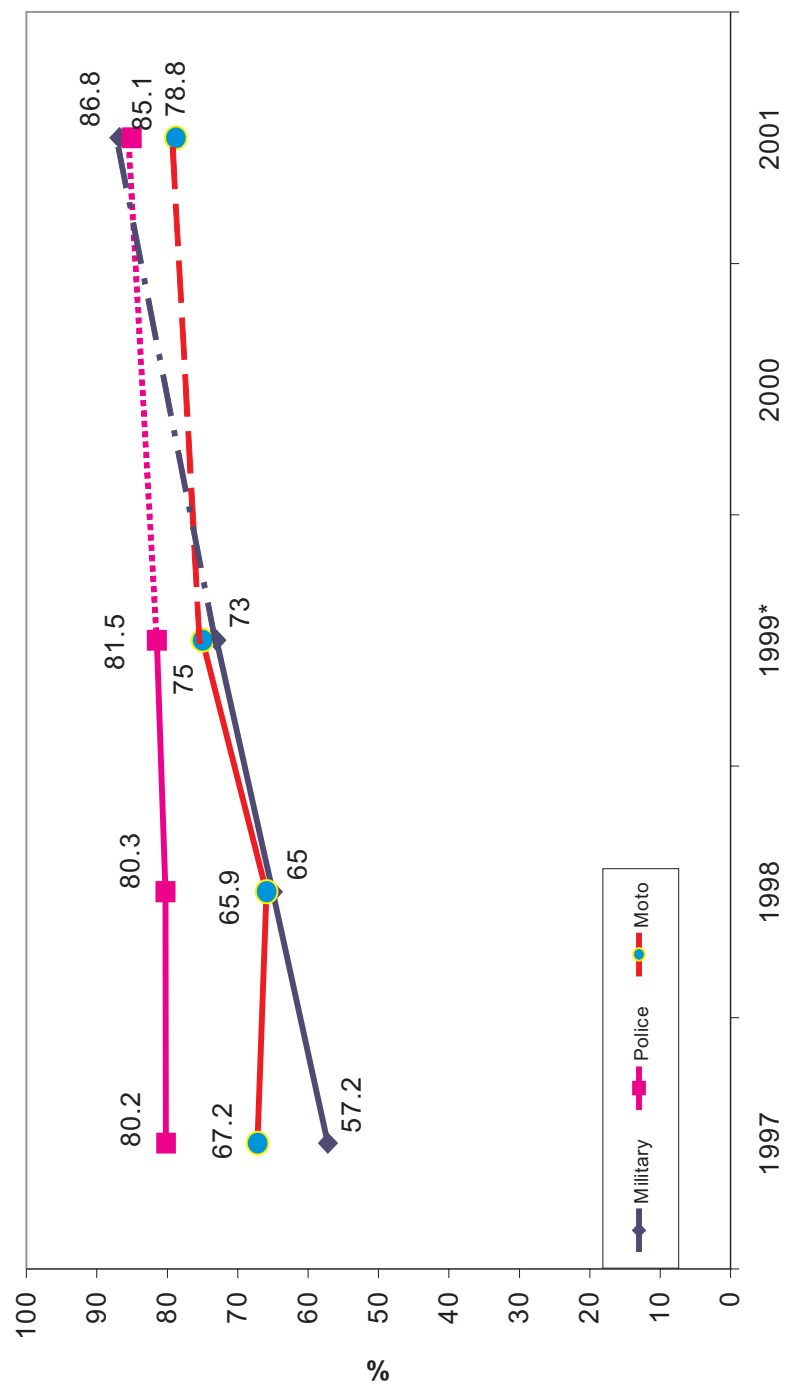
SEXUALLY TRANSMITTED DISEASES SURVEILLANCE (SSS)

The SSS program has been used to determine STI trends in defined high-risk populations (CSWs, policemen) and low-risk populations (ANC women) and to monitor antimicrobial resistance patterns of *Neisseria gonorrhea*. The first round of SSS in 1996 was conducted in three provinces: Phnom Penh, Sihanouk Ville, and Battambang. The second round in 2001 covered these three provinces plus an additional four provinces. The available data from the two rounds of STI prevalence in Cambodia show that there was a decline of about 50% in the main curable STIs (syphilis, gonorrhea, and chlamydia) from 1996 to 2001 (NCHADS, 2001a; Ryan & Gorbach, 1996; Ryan et al., 1998). Gonorrhea declined from 26% in 1996 to 14.7% in 2001, chlamydia from 16.7% in 1996 to 8.7% in 2001, and syphilis from 4% in 1996 to 2.7% in 2001. The SSS also showed that close to 50% of all identified gonococcal strains were resistant to ciprofloxacin (46.8% in 1996 and 49% in 2001), but all isolated strains were susceptible to ceftriaxone and spectinomycin. These results provide the basis for appropriate STI program planning and management.

Thus, behavioral and biological data provide convincing evidence confirming the decline in HIV and STI prevalence and suggest that it was due to an increase in protective behaviors and improved STI program management (Gorbach et al., 2002; NCHADS, 2001a; 2002a; Ryan & Gorbach, 1996; Ryan et al., 1998; WHO/UNAIDS, 2002).

HIV INCIDENCE

The prevalence of HIV infection gives a snapshot of the magnitude of the disease burden for public health. However, HIV incidence, which is the proportion of people



* In 1999 & 2001 always condom use specified "in last 3 months"

FIGURE 4. The trend of consistent condom use among male groups, 1997-2001.

within a population “at risk” who acquire the disease over a given period of time, is the fundamental marker of the success or failure of programs aimed at preventing transmission. Three explanations were hypothesized to explain this decline in HIV prevalence in Cambodia: (a) as the epidemic progresses, because of the unavailability of treatment, more people are dying from HIV/AIDS than are becoming infected, so the overall number living with HIV is declining; (b) the number of new HIV infections each year has dropped as prevention strategies take effect; and (c) the decline is a result of the combination of the mortality and incidence factors.

Recently, a study to estimate HIV incidence among HIV sentinel surveillance groups was conducted. All positive specimens from the four sentinel groups in the HSS from 1999 to 2002 were tested, using a peptide-based capture enzyme immunoassay (IgG BED-CEIA) to determine the prevalence of recent HIV infections. The study found that, after adjusting for population size and growth rate, the HIV incidence declined from 13.9% in 1999 to 6.45% in 2002 among CSWs, from 5.08% in 1999 to 2.87% in 2002 among IDSWs, and from 1.74% in 1999 to 0.26% in 2002 among police. The HIV incidence among pregnant women did not show a decline; the rate was 0.72% in 1999, 1.11% in 2000, and 0.59% in 2002 (Saphonn, 2003). Although the incidence study showed declining trends of HIV incidence among the high-risk groups, one should be aware that HIV incidence among these groups is still high compared with the high-risk groups in other countries (Harrison et al., 1999; Vanichseni et al., 2001) (Figure 5).

HIV SUBTYPE

A study of infected Indonesian peacekeeping personnel stationed in Cambodia as part of the United Nations Temporary Authority in Cambodia in the early 1990s found the type E HIV-1 phenotype, which is similar to the Thai subtype. Other studies have also suggested that the HIV-1 subtype E is the predominant strain in Cambodia (Kusagawa et al., 1999; Lasky et al., 1997; Menu et al., 1999; Ryan et al., 1998; Soeprapto et al., 1995).

ESTIMATION AND PROJECTION

Starting in 1999, at the end of each round of HSS, the NCHADS convenes a consensus meeting to which both local and international experts are invited. One of the objectives of the 2002 consensus meeting was to develop a mathematical model to estimate the number of current HIV infections among the general female and male populations in Cambodia. First, an estimation of the annual national prevalence among pregnant women was performed with the Epidemic Projection Package. Second, the national prevalence among pregnant women was adjusted downward to compensate for the overestimation of the national prevalence among the general population of women. Third, the number of HIV infections during that year was estimated to be the product of the total general population of women in that year and the estimated prevalence in this group. The model estimated that in 2002, there were 157,500 people living with HIV/AIDS (PLHA) in Cambodia, an overall prevalence of 2.6% among the general population aged 15-49 years (NCHADS, 2002a).

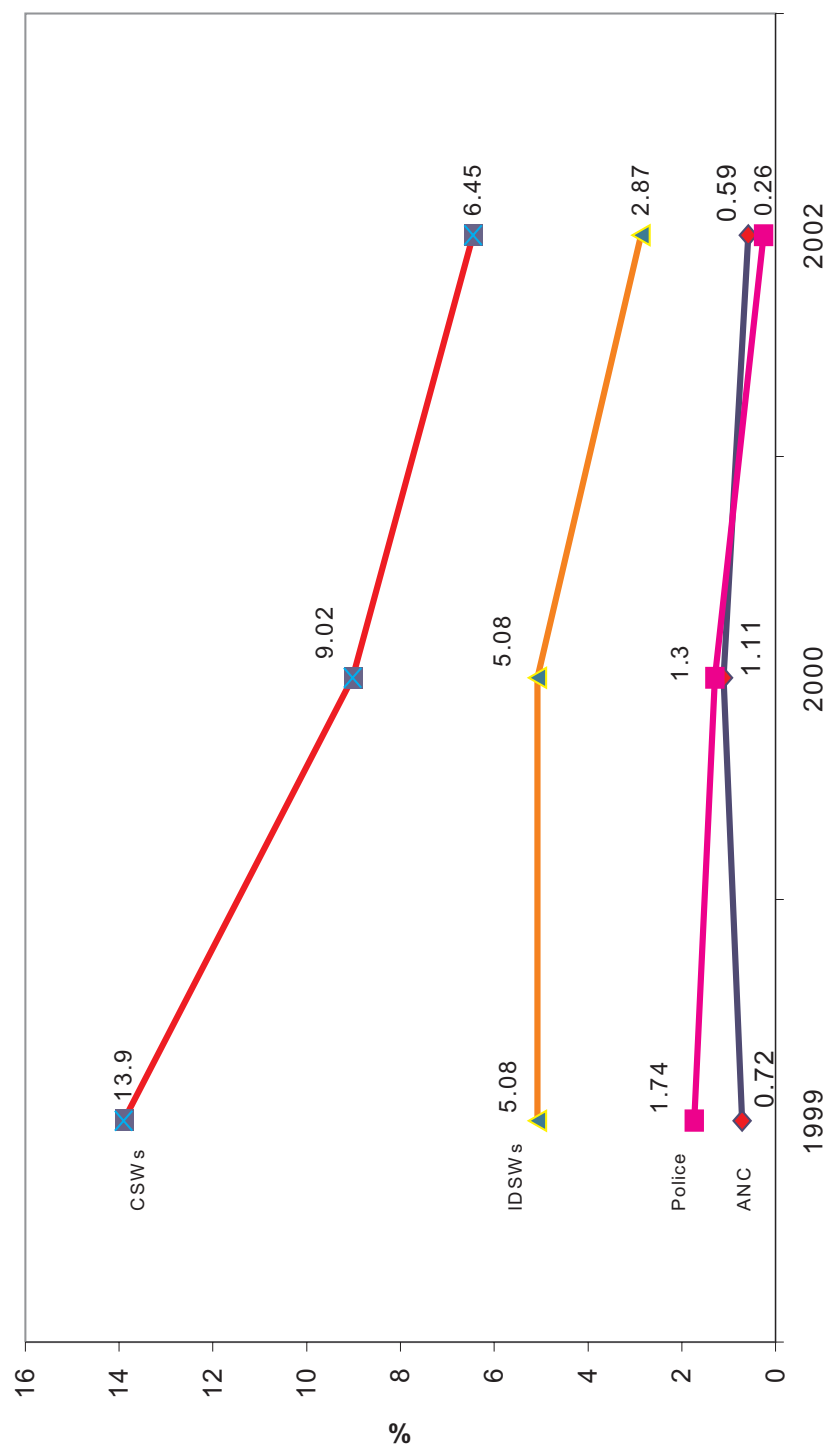


FIGURE 5. The trend of HIV incidence among sentinel surveillance groups, 1999-2002.

PAST, CURRENT AND FUTURE PLANS FOR HIV/AIDS PREVENTION AND CARE IN CAMBODIA

ORGANIZATIONAL STRUCTURE AND MANAGEMENT

The Royal Government of Cambodia first established the National AIDS Committee (NAC) in 1993. The NAC originally consisted of the ministers from 12 ministries and the vice governors of provinces, cities, and the Phnom Penh Municipality. The NAC has the responsibility of developing and implementing preventive measures and guiding the Royal Government of Cambodia concerning AIDS issues. A secretariat to the NAC was also established, which consisted of members of the Ministry of Health. The role of the secretariat was to conduct AIDS activities and to cooperate with WHO and other international organizations providing financial and technical support. The secretariat was chaired by the undersecretary of health (NAC, 1993).

Early in the HIV epidemic in Cambodia, the Ministry of Health made a strong political commitment to the prevention of HIV/AIDS and the care of PLHA. The unit within the ministry responsible for implementing the health sector response to HIV/AIDS prevention and care changed names over time. From 1993 to 1997 the unit was called the National AIDS Program. Since 1998, this unit has been called the National Center for HIV/AIDS, Dermatology and STDs, or NCHADS (NAC, 1993).

In 1999 the National AIDS Authority (NAA) was created and was mandated to be responsible for coordination of the government's expanded approach to the epidemic across all sectors. The NAA works with a policy board made up of the secretaries of state from 12 line ministries. A technical board is responsible for overseeing the implementation of HIV programs and policies. At the provincial level, the NAA supports provincial AIDS committees, which serve as policy-setting groups and are chaired by the provincial governors (NCHADS, 2000b).

NATIONAL HIV/AIDS AND STI STRATEGIC PLANNING

Since the establishment of the National AIDS Program in 1993 and its upgrade as the NCHADS in 1998, the center has developed three consecutive HIV/AIDS national strategic plans: 1993-1998 Comprehensive National Plan for AIDS Prevention and Control in Cambodia (NCHADS, 1993); 1998-2000 National Strategic Plan for STD/HIV/AIDS Prevention and Care in Cambodia (NCHADS, 1998b); and 2001-2005 Strategic Plan for HIV/AIDS and STI Prevention and Care in Cambodia (NCHADS, 2000b). Each subsequent plan reflected the changing focus of interventions over time, according to the stage of the HIV epidemic in Cambodia. For example, the first strategic plan (1993-1998) emphasized prevention measures such as health education for the high-risk and general populations, condom promotion, prevention of transmission through blood transfusion, and surveillance. A major emphasis was to convince people to recognize the epidemic and to increase their awareness of the need to implement prevention measures. The second strategic plan (1998-2000) added voluntary testing and counseling, and the third strategic plan (2001-2005) added care of PLHA.

The 2003-2007 Ministry of Health Sector Strategic Plan emphasizes a commitment to prevention of HIV/AIDS, care for PLHA, and assistance to affected family members. The plan responds to three basic needs to: (a) reduce transmission in high-risk groups through targeted STI treatment and increased condom use, (b) increase awareness of HIV in order to promote HIV counseling and testing services to both the high-risk and general populations, and (c) equip the health system to respond to the increased demand for prevention and care services (Ministry of Health, 2003). These three components are divided in eight areas: (a) HIV/AIDS and STI informa-

tion, education, and communication targeting the general population, as well high-risk populations, using targeted behavior change communication strategies; (b) the 100% Condom Use Program (CUP) for brothel-based sex; (c) STI services for populations most at risk, as well as for the general population; (d) blood safety; (e) prevention of mother-to-child transmission; (f) the continuum of care, including institutional, home, and community-based care, voluntary confidential counseling and testing, and use of universal precautions for health care workers; (g) HIV/AIDS surveillance and research; and (h) organizational and program management, planning, and coordination (Ministry of Health, 2003).

MAJOR LESSON LEARNED

100% Condom Use Program. The 100% CUP, based on the model successfully implemented in Thailand, was piloted in Cambodia in 1998. Since then, this program has been expanded nationwide (to 22 of 24 provinces), requiring consistent condom use with all clients at brothels and for all types of commercial sex. The key elements of the Cambodia 100% CUP include involvement and commitment by a wide range of stakeholders (policymakers, local government officials, owners of sex establishments, NGOs, an outreach program, peer education, regular mapping of sex establishments, regular examinations and free STI care and treatment for sex workers, ensuring availability and accessibility of condoms, and monitoring condom use. Reliable data from Thailand and Cambodia demonstrate a decline of STIs and HIV prevalence among sex workers after implementation of these programs (Rojanapithayakorn, 1996; World Health Organization/Western Pacific Region, 2001; Regional Office for the Western Pacific & NCHADS, 2001). Since launching the 100% CUP in 1998 in Cambodia, the incidence of syphilis has declined from 9% in 1998 to 1.8% in 2000 among sex workers in Sihanouk Ville (one of the first 100% CUP pilot sites in Cambodia) and trichomoniasis from 2% to 0.9%, concurrent with an increase in condom use to 96%. However, one of the limitations of the 100% CUP is the lower coverage of the indirect sex workers, a large group of women who have not been subject to the regulatory aspect of the program. This issue has been raised in many reports (Lowe, 2003; O'Reilly et al., 2003; NCHADS, 2003). According to the NCHADS outreach program, 50% of the estimated 20,000 sex workers in Cambodia are indirect sex workers (NCHADS, 2002b). More innovative strategies need to be implemented to reach this group.

Surveillance Program. Cambodia is among the few developing countries that has an effective surveillance system, including HSS, BSS, and SSS (Walker et al., 2000). Data from biological and behavioral surveillance have been very useful for program monitoring, planning, and intervention. Data from the HSS and BSS have been used to monitor and evaluate the intervention programs (health education program to high-risk populations, STI services, 100% CUP) that NCHADS and other organizations have implemented. Using predictions based on HSS and BSS data, NCHADS has been able to plan for the expected increasing burden of HIV/AIDS in coming years. The surveillance program conducted by NCHADS has played a very important role in resource mobilization by the Cambodian government, donors, multilateral agencies, and NGOs. During the last 5 years, the funding commitment from the government and bilateral or multilateral donors has been increasing remarkably (Mean & Godwin, 2002).

HIV/AIDS Care. As indicated in the third version of the Cambodia National Strategies Plan (2001-2005) and the Midterm Assessment of this National Strategies

Plan in July 2003, care for PLHA has become a priority. Although the country has experienced a decline in both prevalence and incidence among high-risk populations, increasing numbers of adults and children have developed HIV symptoms, which increases the burden upon the already overtaxed existing health care system. According to the NCHADS estimate, there were about 19,000 new AIDS cases and 18,000 new AIDS deaths in the year 2002. The continuum of care, including voluntary confidential counseling and testing, prevention of mother-to-child transmission, institutional care (opportunistic infections, tuberculosis, and antiretroviral drugs), and home-based and community care, has been established and expanded. The number of counseling-and-testing sites has increased from 5 in 1997 to about 50 by the end of 2003. Treatment of HIV-infected pregnant women with nevirapine at the time of delivery was implemented in 1999 in Phnom Penh, the capital, and has now expanded to five provinces. Home-based care was first introduced in Cambodia in 1997, initiated by WHO in Phnom Penh. It has now been increased to 52 home-based care teams in 10 provinces and cities supported by both the government and NGOs. Home-based care was developed to provide HIV/AIDS care services, which reduces the burden on public health care facilities and provides a broad package of medical, psychological, and social support services to PLHA and their families. As of November 2003, 2148 PLHA had received antiretroviral drugs. By the end of 2004, the NCHAD plans to provide antiretroviral treatment to 5,000 people (NCHADS, 2004).

CONCLUSIONS

Thanks to the commitment of the top policymakers, the endless efforts of government institutions, communities, PLHA, and NGOs, the HIV/AIDS epidemic in Cambodia has remained at a stable level. Although there has been a decreasing trend of HIV prevalence and incidence among high-risk populations and an increasing trend in protective risk behavior, Cambodia still has the highest HIV prevalence among the general population aged 15-19 years in Southeast Asia. Moreover, the rate of new HIV infections is still high in the high-risk populations, and transmission among the general population continues. Cambodia therefore needs to increase its efforts to reduce new transmission. In addition to research and intervention to reduce transmission among high-risk populations, more research and prevention programs should focus on vulnerable populations, such as wives and girlfriends, and hard-to-reach populations, such as indirect sex workers.

At the same time, Cambodia must prepare its health infrastructures and human resources to cope with the expected increasingly large number of AIDS patients. The availability of antiretroviral drugs will escalate medical care costs and require the development of a treatment infrastructure and training of health workers in clinical management of patients.

To cope with these dramatic changes resulting from the HIV/AIDS epidemic, the government of Cambodia must develop and implement strategies that are cost effective and feasible for a developing country, and that are flexible enough to anticipate and respond to unexpected changes in the epidemic. Achieving this will require the collaboration of national and international institutions.

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The Current Situation of the HIV/AIDS Epidemic in Indonesia

Pandu Riono and Saiful Jazant

Until 1999 the known prevalence of HIV in Indonesia was low, except for isolated geographic groups exposed to Thai fisherman. Since then, the prevalence among injection drug users in rehabilitation centers in Jakarta has risen rapidly to approximately 45–48%, according to surveys in 2001. By 2002 the prevalence had risen to 8–17% among female sex workers, 22% among transvestite sex workers, and 4% among other male sex workers. Condom use is low in all groups, and there is considerable sexual mixing between risk groups. Surveys suggest that an increasing proportion of adolescents use drugs and have had sexual intercourse. Thus, although the epidemic in Indonesia is currently in the World Health Organization-defined “concentrated stage,” all the ingredients for rapid spread are present. Intensive effective intervention strategies—condom use and clean needle use promotions—need to be implemented, especially in the high-risk groups, if a more serious epidemic is to be averted.

The HIV epidemic in some areas in Indonesia has already reached the “concentrated” stage. The prevalence of HIV in a number of risk sentinel groups (female and transvestite sex workers, injection drug users [IDUs]), and prisoners) has exceeded 5% but has not yet reached 1% in pregnant women who visit antenatal care services.

It is important to realize that in this epidemic the overlapping behavioral risks allow HIV to spread from one person to another within different risk groups. The further spread of the epidemic depends on behavioral risk channels between different risk groups and whether the infection is spread to their sexual partners. The highest increases have occurred among IDUs during the last 5 years. HIV can spread from them to other groups through sexual intercourse (Center for Health Research, University of Indonesia, & Ministry of Health, 2002a, 2002b; Central Bureau of Statistics & Ministry of Health, 2003).

The strengthened and intensified HIV sentinel surveillance system in Indonesia, as well as information from related studies, provide a better picture of the progress of the HIV epidemic in Indonesia to date. There is a need to stop the further spread of the HIV epidemic by intensifying HIV prevention efforts in Indonesia, through reducing both the sharing of contaminated needles among IDUs and sexual risk behaviors.

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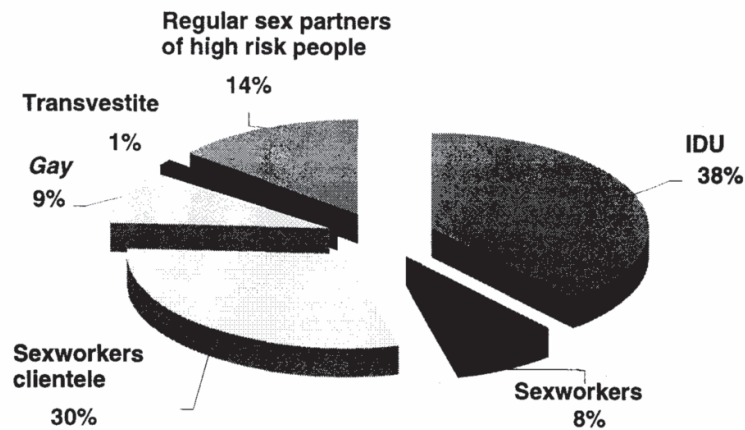


FIGURE 1. Estimates of groups vulnerable to HIV transmission up until 2002.

Note. IDUs = injection drug users. From the Ministry of Health of the Republic of Indonesia (2003).

In this article, we present the trends of the HIV/AIDS epidemic in Indonesia and HIV prevention activities to slow the rapid spread of HIV infection throughout the country.

ESTIMATION OF THE NUMBER OF PEOPLE VULNERABLE TO HIV INFECTION AND NUMBER OF PEOPLE WITH HIV IN INDONESIA

It was estimated that as of 2002 there were approximately 12 million to 19 million people in Indonesia who were at risk of being infected with HIV (Ministry of Health of the Republic of Indonesia, 2003). Some of the groups identified as being vulnerable to HIV infection are IDUs; female sex workers; male clients of female sex workers; men who have sex with men (MSM), including male sex workers and gays; transvestites and their clients; and sexual partners of people in these groups.

Based on HIV sentinel surveillance results and a number of studies on these vulnerable groups, it is estimated that about 90,000 to 130,000 people had been infected with HIV by the year 2002. About 25% of these were women. Overall, injection drug use and clients of sex workers constitute the majority of people infected with HIV. It is estimated that 14% of the regular sexual partners (wives or husbands) of people belonging to these groups have been infected with HIV (Figure 1). Unfortunately, HIV prevention activities have rarely reached the regular partners of individuals belonging to these at-risk groups.

HIV TRANSMISSION AMONG IDUs

There was estimated to be between 124,000 and 196,000 IDUs in Indonesia as of the end of 2002 (Ministry of Health of the Republic of Indonesia, 2003). The spread of illicit drug use in urban areas in Indonesia is quite alarming, especially since many of

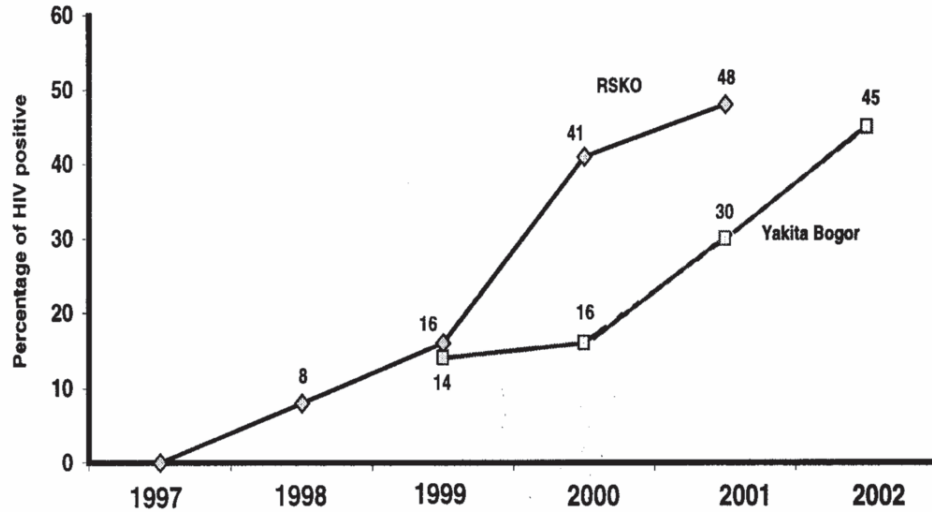


FIGURE 2. The increase in HIV incidence among injection drug users in two drug rehabilitation centers.

Note. From the Ministry of Health of the Republic of Indonesia (2003).

these users are young. The sharing of needles that have not been sterilized has resulted in the relatively rapid spread not only of HIV but also of the hepatitis C virus.

The high rate of HIV transmission among IDUs is understandable, given the rather high numbers of users of illicit drugs, including injection drugs, and the fact that HIV spreads very easily through the use of unsterilized needles. Testing of IDUs being treated at drug rehabilitation centers in Jakarta indicates an extremely rapid increase in HIV prevalence, reaching 45-48% in 2001 (Figure 2). The IDUs that have already been infected with HIV become sources of new infection for other IDUs, simply due to the use of shared needles that have not been sterilized (Figure 3).

A study of IDUs in Jakarta, Surabaya, and Bandung by the Center for Health Research of the University of Indonesia shows that the majority of IDUs live with their families and have at least a high school education. Although they are all aware that the use of needles that have not been sterilized can lead to HIV infection, a large percentage of them nevertheless persist in sharing.

The use of illicit drugs is not limited to lower socioeconomic groups but also involves the younger generation in urban areas who wish to experiment and are susceptible to the influence of their peers. As access to illicit drugs becomes progressively easier, the number of users is on the increase and is spreading through all levels of society. The results of a behavioral survey conducted in Jakarta show that about 30% of high school students have tried illicit drugs (Figure 4).

It is not easy to implement behavioral change in the IDU community because stigma and erroneous beliefs are still widespread. Addiction can be considered as a

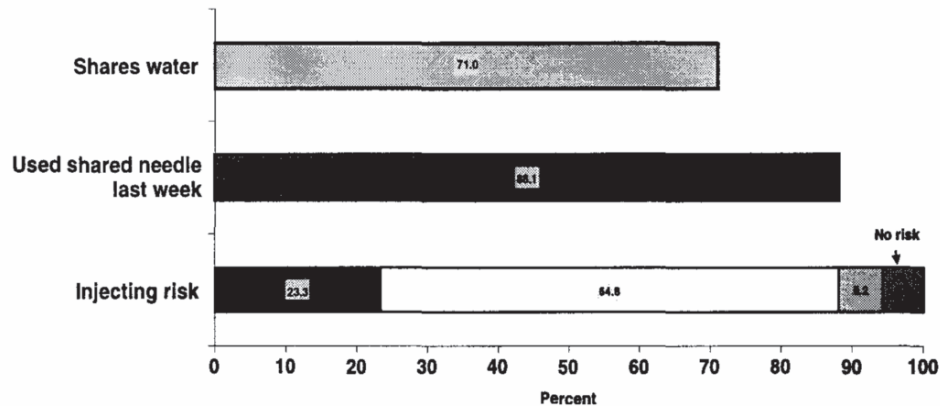


FIGURE 3. The injecting risks among IDUs in Jakarta.

Note. Almost all IDUs in Jakarta report some injecting risk in the past week. From the Ministry of Health of the Republic of Indonesia & Center for Health Research, University of Indonesia (2003).

chronic illness that can be cured. However, IDUs are considered to be criminals in Indonesia, rather than people suffering from an illness who need help.

Moreover, IDUs practice unsafe sexual behaviors, such as buying sexual services but not using condoms (Figure 5). Given that almost half of all IDUs are infected with HIV, such unsafe practices will result in the spread of HIV to noninjectors. It is only by avoiding the sharing of unsterilized needles and by using condoms during all sexual activity that the spread of HIV can be prevented, not only to fellow IDUs but also to noninjectors.

Undertaking a behavioral change intervention is a real challenge. If interventions among IDUs are successful, we will be able to prevent a significant portion of the HIV infections that would otherwise have been transmitted. Such efforts benefit the health of the community in general, not only because they help prevent new HIV infections among IDUs themselves, but at the same time, they help prevent the spread of HIV infections to other risk groups and, most important, to their spouses and children. A rapid increase in HIV infections among IDUs can cause an increase in the transmission of HIV infection through unsafe sexual behaviors.

Parallel with the increase in the number of people addicted to illicit drugs, there is also an increase in HIV infection among people in detention centers and prisons/correctional institutions (Figure 6). HIV infection is also continuing to increase in detention centers and in other correctional institutions. Because facilities are very limited, the sharing of needles that have not been sterilized will continue to increase the risk of infection. Until now, very limited prevention and treatment activities have been implemented to decrease the risk of HIV infection among prisoners. The risk of infection will be even greater if unsafe sexual behavior without the use of condoms is practiced in prisons and detention centers. The reported level of sexually transmitted infections (STIs) among convicts was about 10% in 2001. This percentage is an indication of the

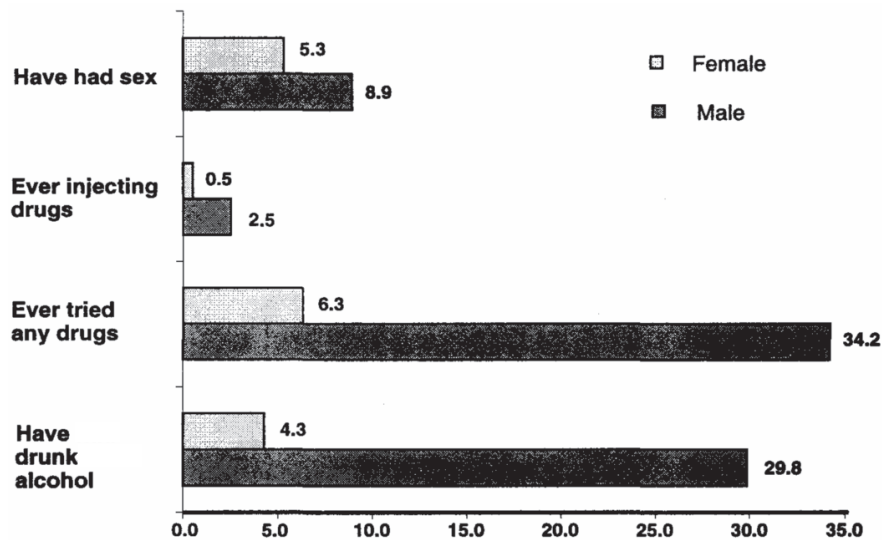


FIGURE 4. Behavioral survey among high school students in Jakarta, 2002.

Note. From the Ministry of Health of the Republic of Indonesia and the Central Bureau of Statistics (2002).

presence of sexual risk behavior among prisoners. HIV transmission can spread even further when prisoners return to their families. Infection can be transmitted to their sexual partners, especially from those who are not aware that they have been infected and have no knowledge of HIV prevention methods.

In view of the sharp increase in HIV transmission during the past few years, it is time for HIV prevention efforts to reach out to prisoners. The current situation indicates the presence of sexual risk behavior that allows for transmission, and it is quite possible that the majority of prisoners have not obtained information relating to means of infection and its prevention.

RISKY SEXUAL BEHAVIOR IN INDONESIA

Commercial sex is growing very fast in all corners of the archipelago and varies widely in scale. Women who sell sex can be classified into two categories, those who sell sex directly and those who do so indirectly. Direct sex workers are those who sell sex services in red-light areas, brothels, or on the street; indirect sex workers generally work under the cover of recreational and fitness enterprises, such as bars, karaoke, massage parlors, and so on.

There are an estimated 190,000 to 270,000 female sex workers in Indonesia and approximately 7 million to 10 million men who are clients of sex workers. More than 50% of these male clients have regular partners or are married. Unfortunately, fewer than 10% of them consistently use condoms to avoid being infected with STIs, including HIV.

Results of HIV surveillance show an increase in HIV infection among FSWs (Figure 7). If we do not succeed in increasing the level of condom use during commercial

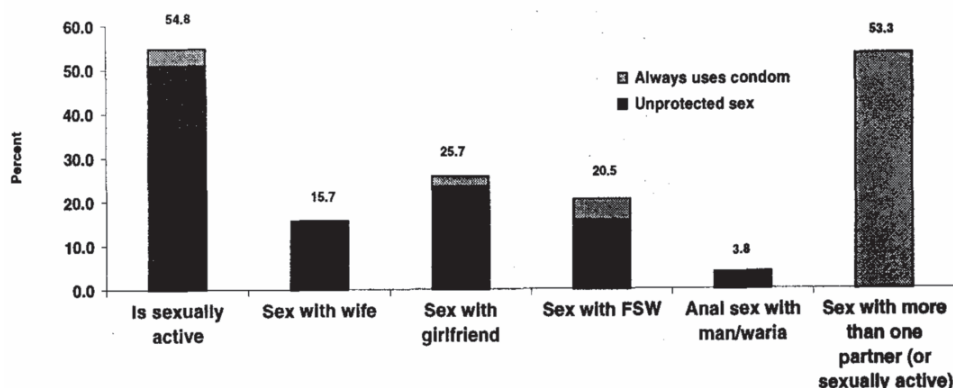


FIGURE 5. The sexual risk behavior among injection drug users (IDUs) in Jakarta. Waria = transvestite (sex worker).

Note. In the past year, many IDUs in Jakarta had sex with more than one partner, and condom use is rare, an efficient way to spread the epidemic into other populations. From the Ministry of Health of the Republic of Indonesia and Center for Health Research University of Indonesia (2003).

sex, disease transmission will continue to occur, not only from sex workers to clients and vice versa but also to spouses (regular partners) of clients.

Sexual services are not limited to female sex workers. On a smaller scale, commercial sex is also being provided by male sex workers and transvestites. The increase in unsafe sexual behavior in Indonesia is not limited to heterosexuals but also includes MSM, among others, such as transvestite sex workers, male sex workers, and gays. Male sexual behavior appears to be much more complex, because there are men who enjoy sexual relations with other men, with women, and/or with transvestites. The fact that there are men in Indonesia who are oriented toward or choose to have sexual relations with others of the same sex produces yet another kind of sex industry. Sex services offered by transvestites, as well as those offered by males to other males, have increased in large towns in Indonesia.

There has been a very sharp increase in HIV infection among transvestites compared with previous years (Figure 8), from 6% in 1997 to 21.7% in 2002. This sharp increase also occurred in other groups that frequently practice anal sex without using any protection. Today, it is estimated that there are approximately 1.2 million (600,000-1.7 million) people categorized as gay, about 8,000 to 15,000 transvestites, and about 2,500 male sex workers. Results of a behavioral study and serologic survey carried out among MSM indicate unsafe sexual behavior, namely anal sex without the use of condoms and lubricants. Lubricants are used in anal sex to avoid mucosal tears in the anus and rectum, which increase the likelihood of HIV infection.

The impact of unsafe sexual behavior is indicated by the relatively high level of HIV and history of STIs, particularly among transvestites (Figure 9). STI treatment must be provided to lower the risk of HIV infection among groups in which STI occurrence is high.

The HIV epidemic among prisoners

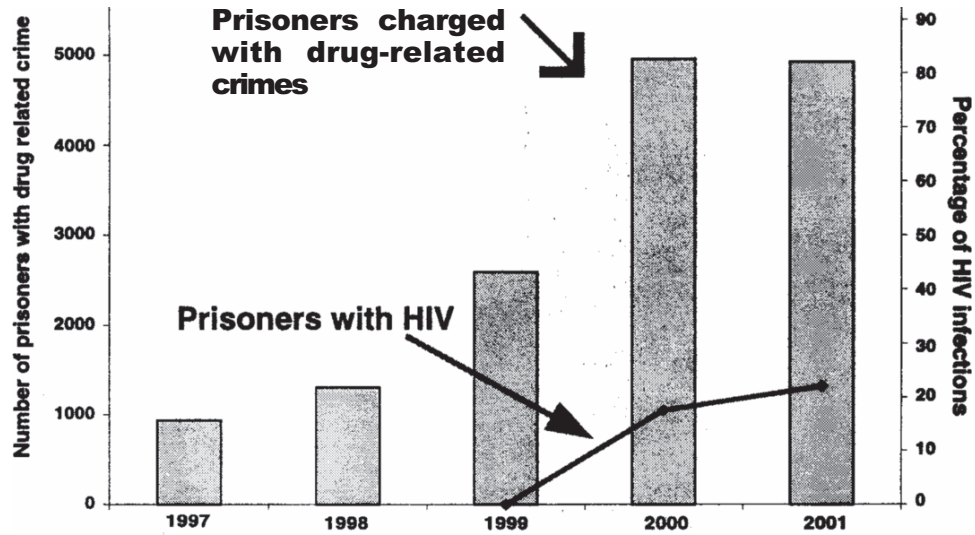


FIGURE 6. The increase in HIV occurrence among prisoners in Salemba Prison in Jakarta and the increase in prisoners committing drug-related crimes in Indonesia.

Note. From the Ministry of Health, of the Republic of Indonesia, and the National Narcotics Board (2002).

ADOLESCENT RISK BEHAVIORS

Behavioral surveillance survey results from high school students in Jakarta indicate that 8% of male students and 5% of female students have had sexual relations. About 30% of male students and 6% of female students have tried illicit drugs (see Figure 4). About 2% have used injection drugs. Knowing that risk behavior begins in adolescence, educational programs are needed that teach about the risks of infection and appropriate methods of prevention, such as avoiding sex and the use of addictive substances. Adolescents like to experiment and are vulnerable to friends' influence, but they lack the knowledge and skills for self-protection. Thus, we must try to ensure that adolescents do not practice the kind of unsafe behavior that can lead to HIV transmission. The world has pledged to decrease the global incidence of HIV by three quarters among young people between the ages of 15 and 24 by the year 2010. The effort needs to begin right now to reduce vulnerability, as well as to increase young people's skills in avoiding risky sex and the use of illicit drugs. This effort should be carried out in a structured way to ensure that it reaches the younger generation who are outside the school system, as well as those who are still in school.

THE DYNAMICS OF HIV TRANSMISSION IN INDONESIA

HIV transmission has picked up speed, and more people have become infected. There is full awareness that the spread of HIV continues to expand, due to the interaction between groups that are vulnerable to HIV, as well as their interactions with society in general. In fact, members of society in general are also now at risk.

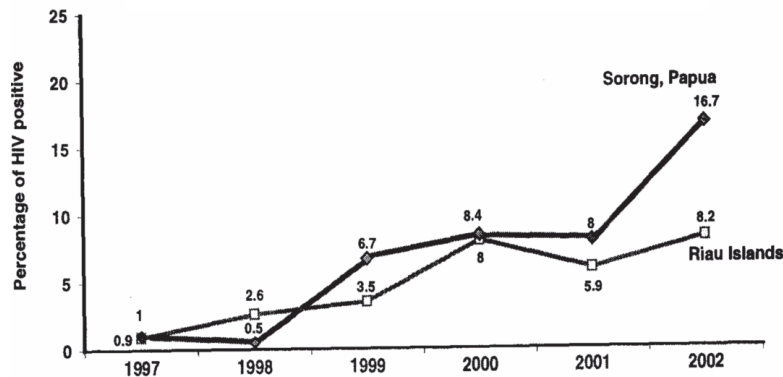


FIGURE 7. The increase in HIV occurrence among FSWs in sentinel sites.
Note. From the Ministry of Health, of the Republic of Indonesia (2002).

HIV seroprevalence levels among blood donations nationally and in Jakarta were very low in the early 1990s but have been rising consistently, particularly since 1998 (Figure 10). If the results in blood donors are considered to be representative of the low-risk population, the findings among blood donations suggest that HIV infection is moving to the “low-risk population” in Indonesia.

The HIV epidemic patterns in different Asian countries have certain similarities, although there are differences in scale and in time. At the initial stage, HIV infections occur within certain at-risk subpopulations and then spread from this group to other larger populations. The epidemic occurs within groups of IDUs, MSM, sex workers and their clients, and regular partners (wives or husbands) of members of these risk groups.

It is well understood that the real picture of the HIV epidemic in Indonesia is made up of several epidemics in different provinces, regions, and cities/towns. There is also a variety of levels between different subgroups. It is clear that high HIV transmission occurs among IDUs, sex workers, and street-based transvestite sex workers.

The results of behavioral surveys carried out among various groups that are vulnerable to HIV infection in different towns in Indonesia indicate that these groups practice unsafe sexual behaviors with other risk groups (Figure 11). Significantly, there is also a particularly high frequency of unsafe sexual activity and shared needle use among IDUs. A very high proportion of male sex workers are also having sex with women, further spreading STIs and HIV.

A model of the transmission channels between the groups is shown in Figure 12. This interchange is a crucial factor in the spread of the HIV epidemic; the high HIV

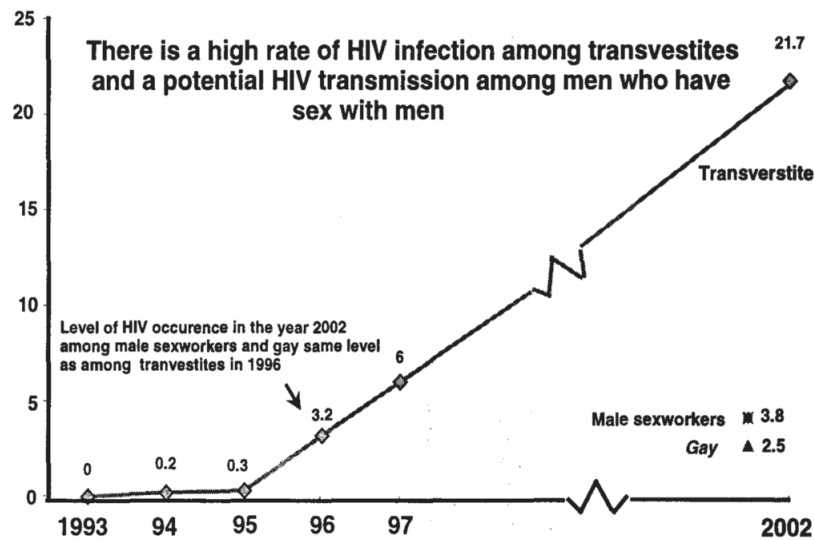


FIGURE 8. HIV occurrence among transvestite sex workers in Jakarta, 1993-2002.

Note. From the Center for Health Research, University of Indonesia, & Ministry of Health of the Republic of Indonesia (2002).

prevalence among IDUs can thus spread HIV to sex workers, and from them to sex workers' clients, and on to their sexual partners (both wives and husbands).

It is very clear that HIV transmission channels are no longer limited to high-risk behavioral groups; they infiltrate other groups, including groups with low-risk behaviors. The HIV epidemic in Indonesia has already taken off. Will HIV infection continue to proliferate? With the level of HIV infections on the increase, and given the phenomenon of expanding channels of transmission, the potential for the HIV epidemic to spread further in Indonesia will become even greater if more serious efforts for HIV prevention are not made.

INTERVENTION CONSTRAINTS

The government of Indonesia has responded to the recent increase in HIV-infected persons by developing a national strategic plan and strengthening the National AIDS Committee. Funds to support intervention activities, however, are still limited. The majority of funding comes from donor agencies and nongovernmental organizations (NGOs) whose agendas are not necessarily commensurate with the government's. A recent survey among IDUs and MSM in three provinces indicated that very few of them had been exposed to intervention activities.

A major barrier to promotion of harm reduction strategies, such as needle/syringe exchange programs and condom promotion, is the strong influence of very conservative Moslem leaders who feel that such activities promote extramarital sex and drug use. Further, drug use is a criminal offense in Indonesia. Vigorous enforcement of this law drives drug users "underground" and promotes sharing of drug paraphernalia, seriously hindering implementation of harm reduction strategies.

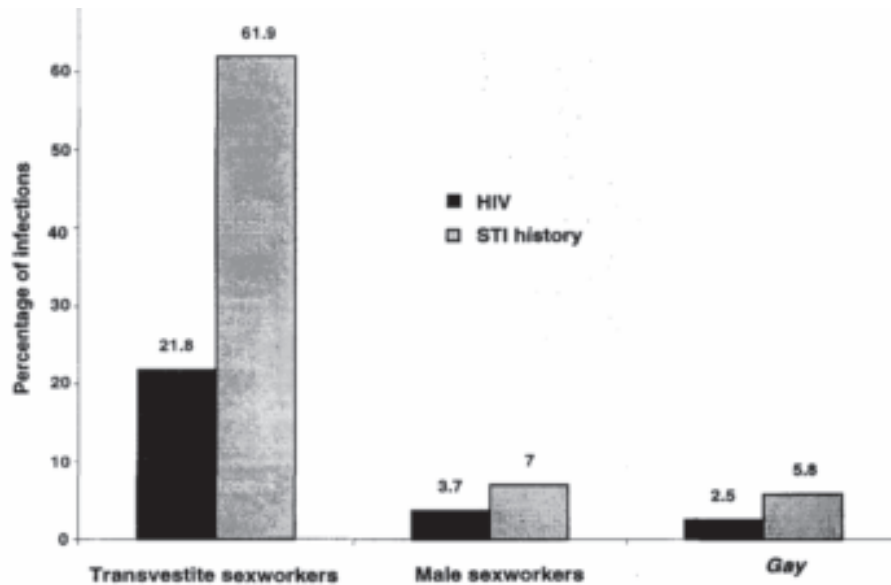


FIGURE 9. HIV and STI occurrence among men who have sex with men in Jakarta, 2002.
Note. From the Center for Health Research, University of Indonesia, & Ministry of Health of the Republic of Indonesia (2002).

TREATMENT

In December 2003 the government launched a treatment program utilizing generic antiretroviral drugs at a reduced price. They hope to have 1,500 HIV-infected person on treatment by 2005. Effective treatment, however, will depend on identifying HIV-infected persons early in the course of their disease (made difficult by the high level of stigmatization) and developing an infrastructure capable of clinical management of the patients.

NECESSARY RESPONSES TO THE HIV EPIDEMIC IN INDONESIA

Behavioral change efforts are needed that can access the at-risk groups. It is clear, however, that we do not yet have the capacity to reach a large portion of vulnerable groups. In addition, those who have already been reached through the program have evidently not been motivated to change their behavior. It is hoped that future prevention efforts will be given serious support from all components within the country so that the negative impacts of HIV can be prevented. Based on the available evidence, there is a need for a prevention effort that is more focused and that has extensive reach, one that has significant impact in preventing new HIV infections in both the short and long term.

The dynamics of the HIV epidemic in Indonesia are heavily influenced by the interactions between various at-risk groups. Outreach to high-risk groups such as IDUs

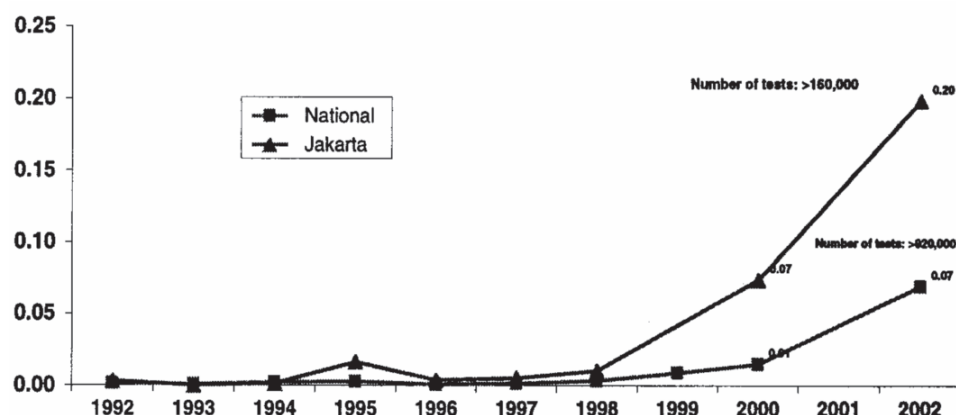


FIGURE 10. Prevalence of HIV infection among blood donors 1992-2002.

Note. From the Ministry of Health of the Republic of Indonesia and the National Transfusion Unit (2002).

is needed, in the hope that provision of clean needles and condoms on a larger scale will prevent HIV and the hepatitis C virus from spreading.

Taking into consideration the fact that there is also a risk of HIV transmission in detention centers and prisons/correctional institutions, efforts are needed to increase the understanding of the ways in which HIV spreads, as well as ways of preventing it among prisoners.

Young people need to receive comprehensive information on the means of HIV transmission and its prevention, as well as skills in avoiding risk behavior. Such knowledge and skills need to be disseminated as early as possible, both in schools and outside. It is hoped that in this way, a significant proportion of the young generation in Indonesia will be able to reject unsafe behavior.

Given the fact that male clients of sex workers can play a very important role in reducing transmission by always using condoms during risky sexual activity, high priority should be given to providing information that motivates a change of behavior among these men. In Indonesia, where there is inter-high-risk group transmission, as well as transmission to low-risk groups through sexual relations, the use of condoms would not only prevent transmission between at-risk groups but also prevent further transmissions to low-risk groups, namely, their regular partners or wives, as well as their children.

Current efforts are still inadequate and have not yet reached many of the vulnerable groups. The maximum impact is expected through prevention efforts that are more focused on groups with high rates of transmission, such as sex workers, MSM, and IDUs. To date, efforts have been limited to certain groups and have also had limited coverage.

A strategic plan for prevention has been drawn up and will be used as a basis for the national strategic plan for HIV/AIDS prevention. The activities that have been set out in this strategy include promotion of a healthy lifestyle, safe sexual behavior,

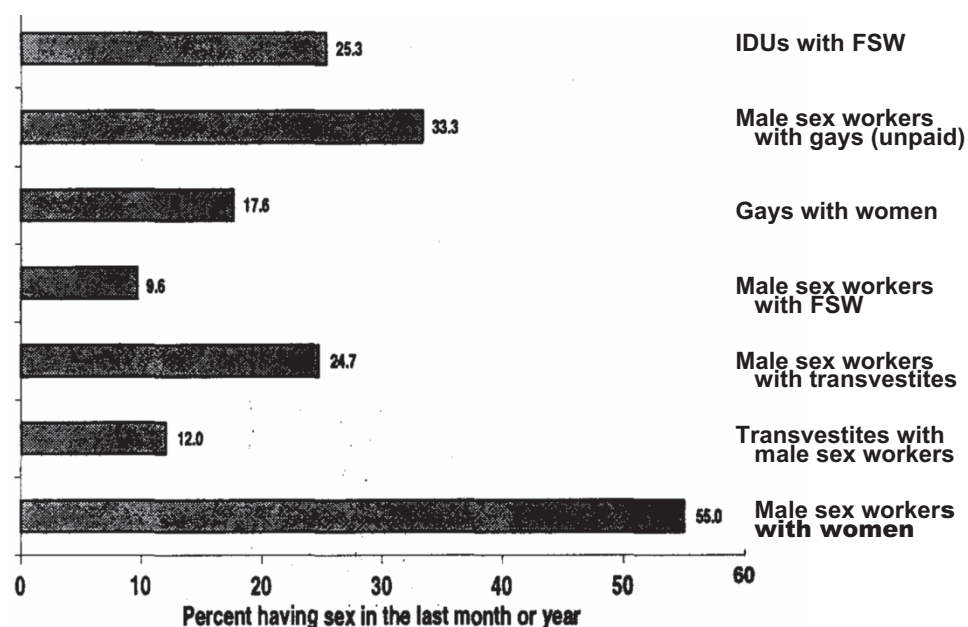


FIGURE 11. Mixed sexual transmission between risk groups.

Note. From the Central Bureau of Statistics & Ministry of Health of the Republic of Indonesia (2002).

condom promotion, STI treatment, the use of safe needles, and support for people with HIV/AIDS. HIV prevention activities have been carried out through the cooperation of various parties, such as donor organizations, community self-help organizations and NGOs, and other groups concerned about the HIV/AIDS epidemic in Indonesia.

CONCLUSIONS

Obvious efforts that can be put into action immediately are needed. We need to increase and widen HIV prevention efforts, we need support from all sectors, and we need concerted action that is not limited either to the government sector or the community. This is the only way that the spread of the HIV epidemic in Indonesia can be prevented.

It is hoped that prevention efforts will be able to avert new cases of HIV. However, if prevention efforts are not stepped up intensively, and in a way that can reach groups that are vulnerable to HIV, it will be difficult to avoid new infections.

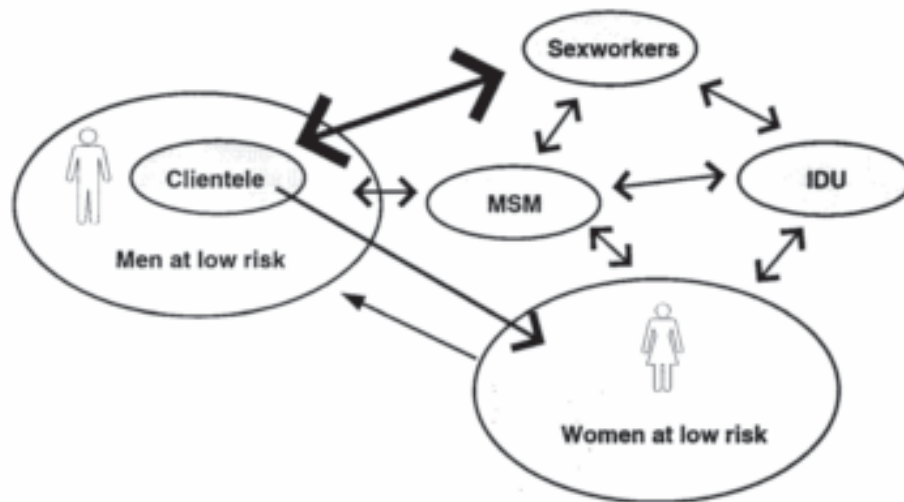


FIGURE 12. Potential mechanism of sexual transmission of HIV in Indonesia, from one risk group to another, through contacts without condoms.

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The HIV/AIDS/STI Situation in Lao People's Democratic Republic

Chansy Phimpachanh and Khanthanouvieng Sayabounthavong

Lao People's Democratic Republic (Lao PDR) is a landlocked country with a population of 5.5 million and a total land area of 236,800 square kilometers. It has a population density of 23.3. It borders Thailand, Myanmar, China, Vietnam, and Cambodia. Its population distribution is 54.9% below the age of 20 years, and 27.8% aged between 20 and 39 years (NSC, 2002). Women comprise 49.5% of the overall population.¹

Lao PDR is classified as one of the least developed countries. In 2003, the government developed the National Poverty Eradication Program (NPEP) to free the country from its least-developed status by 2020. In the NPEP, the National Plan of Action for HIV/AIDS/STI was one of the three poverty-related national programs.

Lao PDR is classified as a low HIV prevalence country (0.06%) by UNAIDS.² From the first round of Second Generation Surveillance conducted in 2000–2001, including biological and serological data, the HIV prevalence among a high-risk group (service women)³ was found to be low (0.9%). On the other hand, the sexually transmitted infection (STI) prevalence rate among the same target population was high for chlamydia (32%) and gonorrhea (14%).

Lao PDR are facing the challenges of an increase in migration internally and internationally, increased recreational use of drugs such as amphetamines among youth, and a high prevalence rate of STIs. Bordering with countries that have high HIV prevalence rates, the country has implemented more efforts to fight HIV infection. The country is aware of its high risk for HIV epidemic, and the government has set up a multisectoral response to HIV/AIDS and developed the National Policy on HIV/AIDS/STI in 2001 and the National Plan of Action for HIV/AIDS/STI for 2002 to 2005. Presumptive treatment for STIs among service women in five provinces is

1. National Statistics Center, Basic Statistics, 2002; National Statistics Center, Population Census.

2. UNAIDS, *Promoting the millennium development Goals in Asia and the Pacific: meeting the challenges of poverty reduction* (New York: United Nations, 2003), 30.

3. The term *service women* was first used in 2000 and defined as any woman working in small drink shops, night clubs, or guesthouses who has direct contact with patrons. In addition to serving food or beer, or providing conversation with customers, some service women sell sex. They are not screened to determine whether they sold sex before enrollment in the survey.

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TABLE 1. Statistics on HIV/AIDS and Testing, 1990 to June 2003

HIV first identified	in 1990
First AIDS case identified	in 1992
Number of provinces reporting HIV/AIDS	14
Blood samples tested	91,003
Number of HIV-infected persons	1,102
Number of AIDS cases	599
Number of deaths from AIDS	461

being implemented, funded by a Global Fund grant to fight AIDS, tuberculosis, and malaria. In collaboration with Family Health International, presumptive treatment is being piloted in Luang Prabang, and with the Asian Development Bank Project the 100% Condon Use Program (CUP) is being piloted in Savannakhet. A care and support program with antiretroviral and opportunistic infection treatment is being piloted in Savannakhet.

CURRENT STATUS OF THE HIV/AIDS EPIDEMIC IN LAO PDR

Lao PDR stands in a unique position among Asian countries confronting HIV. The country continues to experience a low HIV prevalence, with an estimated adult seroprevalence of HIV of 0.06% by the end of 2001⁴ (Millennium Development Goals Report, 2003). The Second Generation Surveillance studies, which combined behavior, HIV seroprevalence, and sexually transmitted infection (STI) prevalence, showed an HIV prevalence of 0.9% among service women in the entertainment industry in three cities and 0% prevalence in a sample of long-distance truck drivers and female factory workers (internal migration from rural to urban areas).⁵

The government of Lao PDR responded early in the HIV epidemic by establishing the National Committee for the Control of AIDS (NCCA) in 1988. The political commitment was increased by restructuring to achieve a broader multisectoral response in January 2003.

The first HIV-infected individual was detected in Vientiane, the capital, in 1990, and the first case of AIDS was identified in 1992. By June 2003, according to case reports from 14 of 18 provinces and blood samples from 91,003 persons, the cumulative number of HIV-positive persons was 1,102, including 599 individuals living with AIDS and 461 deaths from AIDS (Table 1). In Lao PDR, the distribution of cases reflects the distribution of the population, with both the population and HIV infections concentrated in major cities. Fully two thirds of the country's entire caseload is found in just two regions, the Vientiane municipality and Savannakhet; the remaining 326 cases are distributed across less-populated regions, with provinces in the extreme north and south reporting no cases at all. Higher numbers of cases are reported along the Thai border (Figure 1).

4. UNAIDS, 2003.

5. HIV Surveillance Survey and Sexually Transmitted Infection Periodic Prevalence Survey (HSS and SPPS), Lao People's Democratic Republic, 2001.

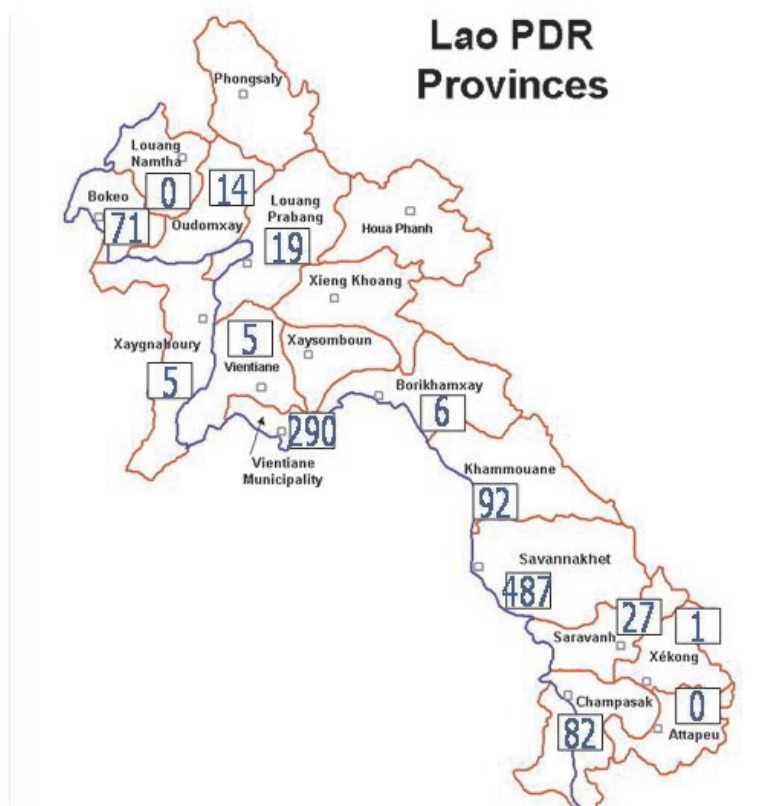


FIGURE 1. HIV infections in Lao PDR by provinces, from 1990 to June 2003.

Figure 2 shows an increasing trend of HIV infection since 1990. The health information systems, however, are incomplete, and these figures probably underestimate the true prevalence. Of the cumulative cases, 63% were males and 37% were females.

Almost 80% of all cases occur in Laotians aged 20-40 years (Figure 3). Among the cumulative number, four out of five of these infections have resulted from heterosexual intercourse, and less than 3% are attributed to homosexual encounters. Almost 16% of the cases of HIV infection reported in Lao PDR have been due to unknown risk factors. Interestingly, almost 1% of the total caseload of HIV infections, some 10 cases, have been ascribed to the use of contaminated needles during acupuncture (Table 2). Twenty-four children are HIV-infected, which is 2.19% of the total. In the most affected province, Savannakhet, 130 persons are infected.

The first round of Second Generation Surveillance (SGS) was carried out in Lao PDR in 2000-2001. It was the first surveillance ever completed to study HIV-related risk behavior and the prevalence of HIV and STIs. The SGS included biological and serological data that will be repeated to allow measurement of trends over time. The SGS was focused on high-risk groups, which included the mobile population. The Behaviour Surveillance Survey (BSS) was conducted in five provinces in 2000-2001 and measured HIV risk factors among seven high-risk groups, including service women (sex workers), long-distance truck drivers, police, army, male and female migrant workers (M/FMW) (Laotians who cross to work in Thailand and return to Laos for

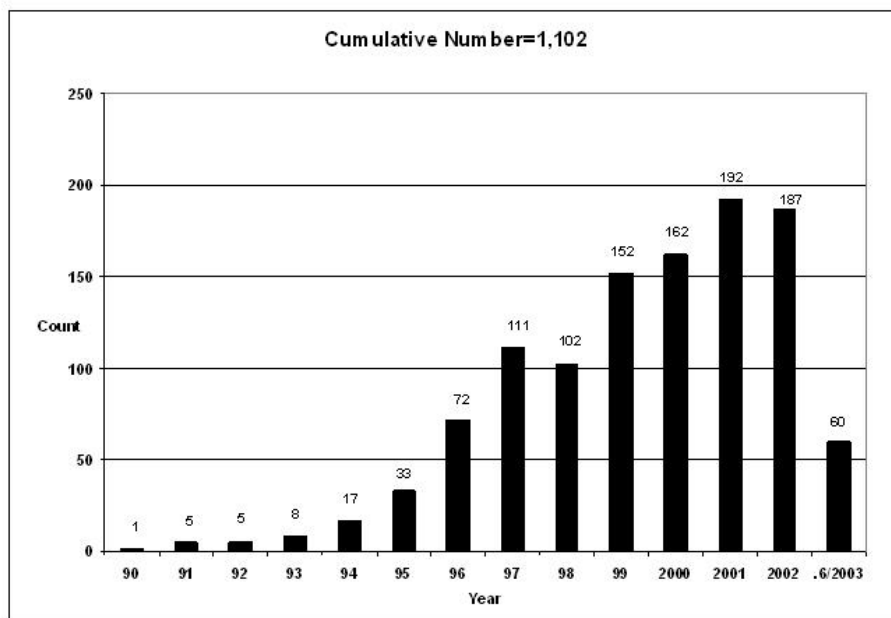


FIGURE 2. Number of HIV Positives, by Year

rice-planting season), and female factory workers.⁶ A serological study was carried out in four provinces in 2001 among service women, long-distance truck drivers, and female factory workers. The results from the SGS indicated that the HIV prevalence rate among service women was 0.9%; therefore, Lao PDR is still a low-prevalence country. On the other hand, STI prevalence in the same population was high, with chlamydia at 32% and gonorrhea at 14%.

A survey of service women (women working in venues that may provide sexual services), female factory workers, and truck drivers was conducted in three provinces (Vientiane, Savannakhet, and Luang Prabang) in 2001. The service women reported an average of six commercial sex partners per month, averaging just over one per week. This is considerably less than the average of three or more sex partners per night for sex workers in Thailand and Kenya, which have much higher rates of HIV. These data suggest that the sexual mixing pattern among service women in Laos is below the threshold for the HIV epidemic to take hold, despite the lack of consistent condom use. The prevalence of HIV in service workers was less than 1% (Table 3). Consistent condom use by female service workers ranged from 2.5% with regular partners in Vientiane to 16.2% with nonregular partners in Luang Prabang (Figure 4). Chlamydia was the most common STI among the service women, with just under one

6. The term *female factory workers* refers to young women from rural areas who have come to urban areas to work in factories and live in dormitories near the factories.

TABLE 2. Percentage of HIV-Positive Cases by Mode of Transmission, Cumulative Number from 1990 to June 2003

Mode of Transmission	Percentage (%)
Heterosexual	80.94
Homosexual/bisexual	0.72
Injection drug user	0.09
Acupuncture	0.09
Transfusion	0.36
Mother to child	2.17
Unreported	15.60

third infected, followed by gonorrhea at almost 14%. Syphilis was found in less than 1%. The high prevalence of chlamydia and gonorrhea probably reflects poor access to treatment among service women. Although no HIV was found among the truck drivers, the prevalence of chlamydia was 9%. The prevalence of syphilis and gonorrhea was less than 2%. No HIV was found among female factory workers, but the chlamydia prevalence was 6.6%, suggesting that at least some of them were sexually active. All of the factory workers lived in factory dormitories and were not married, so they did not acquire infection from their husbands. Thus, some of the unmarried women had had sexual intercourse.

CURRENT INTERVENTION STRATEGIES AND POLICIES

STRATEGIES

The National Strategic Plan on HIV/AIDS/STI for 2002-2005⁷ has been set up to be consistent with the country's environmental, cultural, and socioeconomic situation; the country's overall development plans; the HIV/AIDS prevention strategies of UNAIDS; and the Resolution of the United Nations General Assembly Special Session on HIV/AIDS in June 2001.

POLICY ON HIV/AIDS/STIS⁸

The Lao PDR has based its HIV/AIDS/STI policy and control activities on the universal principles of nondiscrimination; a multisectoral, integrated approach; voluntary approaches with informed consent; confidentiality and privacy in counseling, testing, and care; empowerment of individuals to take personal responsibility; gender equity; accessibility to affordable and acceptable health services; reduction of risk for vulnerable individuals and community groups; and involvement in decisionmaking of those with and affected by HIV/AIDS. The policy has three aspects: (a) prevention of HIV infection, (b) care and support for those infected with and/or affected by HIV/AIDS, and (c) mitigation of the adverse impact of HIV/AIDS on the social and economic development of individuals and the nation.

7. National Strategic Plan on HIV/AIDS/STD for 2002-2005, January 2002, Lao PDR, Ministry of Health, National Committee for the Control of AIDS Bureau (NCCAB).

8. National policy on HIV/AIDS/STD, December 2001, Lao PDR, NCCAB, Ministry of Health.

TABLE 3. Prevalence of HIV and STIs among Service Women in Three Provinces

	HIV % (95% CI)	Syphilis % (95% CI)	Chlamydia % (95% CI)	Gonorrhoea % (95% CI)
Vientiane	1.1 (0.3, 3.6)	0.4 (0.1, 2.7)	34.8 (29.2,40.9)	13.6 (9.6,19.0)
Savannakhet ^a	1	0	23.3	13
Luang Prabang ^a	0	0	31.9	16.2
Total	0.9 (0.4, 2.3)	0.2 (0.0, 1.7)	32.0 (28.0,40.9)	13.9 (11.0,17.4)

^aTake all samples (no CI).

PREVENTION OF HIV INFECTION

The main method of acquiring HIV in Laos is through unsafe sexual behavior. Therefore, prevention involves promoting safer sexual behavior, including encouraging sexual abstinence until marriage, fidelity within marriage, and use of condoms in situations where abstinence or faithfulness are not certain, as well as making condoms widely available. The prevention measures include promoting condom use, preventing mother-to-child transmission, STI prevention and treatment, discouraging injection drug use, and implementing a blood safety policy.⁹

CARE AND SUPPORT FOR PEOPLE WITH HIV/AIDS (PWHAs)

Care and support includes universal precautions, counseling and testing, and care and support for infected and affected people, which involves providing the same quality of care for HIV/AIDS patients as for patients with other diseases, nonstigmatization of HIV-infected persons and persons in risk groups, home-based care, holistic care and support, and access to antiretroviral treatment (ARV).

Because of the high prevalence of STIs, the country has been aware of the risk of an HIV epidemic. The first award for HIV/AIDS from the Global Fund AIDS, Tuberculosis, and Malaria is focused on the issue of STIs. The aim is to improve STI services in public facilities and to implement presumptive treatment for STIs among service women in five provinces: Luang-Namtha, Vientiane Province, Vientiane Capital (Municipality), Champassack, and Saravanh. A program called Presumptive Treatment for STIs Among Service Women has been carried out and piloted in Luang Prabang, with financial and technical support from Family Health International, and in collaboration with Global Fund and Asian Development Bank projects. Presumptive treatment is to be extended to Vientiane, Luang Namtha, Savannakhet, Salavane, and Champassack provinces.

A 100% Condom Use Program (100% CUP) has been initiated in the province with the highest number of HIV infections (Savannakhet). It is hoped that the program will be expanded to other provinces, along with presumptive treatment. From the lessons learned from the Luang Prabang project, presumptive treatment must be supported by the 100% CUP to reduce STIs and to maintain a low prevalence of HIV.

The number of PWHAs has been increasing, and they have formed a self-help network. The National Policy on HIV/AIDS/STI has indicated that ARV treatment will be supported if there is a pilot project implemented by donors. Supported by Médecins Sans Frontières, a project providing ARV treatment has been implemented in one province (Savannakhet). It was initiated in October 2003, beginning with five patients, and by 2004 it is hoped that 50 patients will be included. There seems to be an

9. National Blood Policy of Lao Red Cross, 1996.

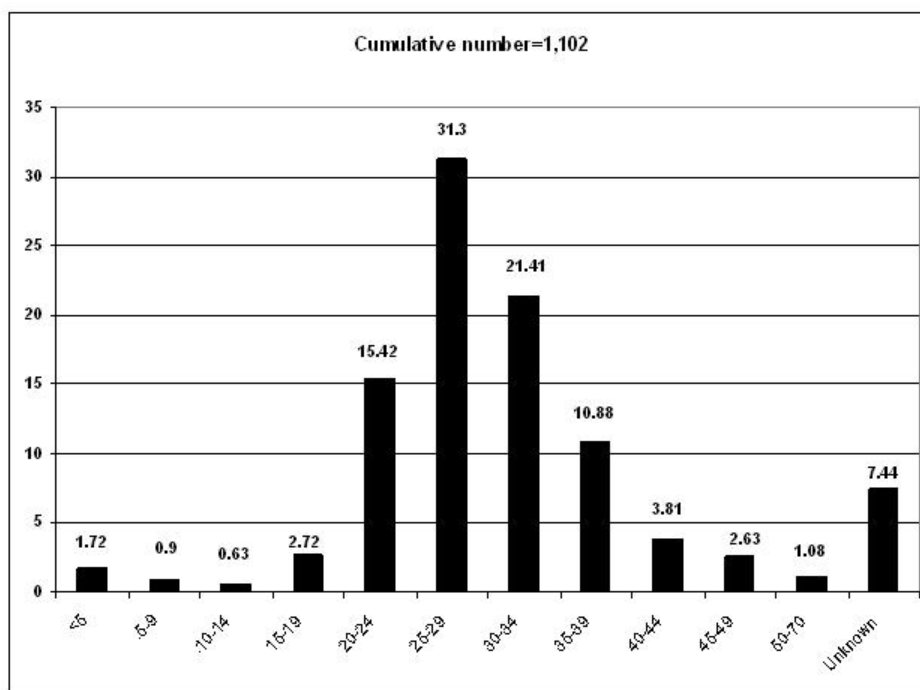


FIGURE 3. Age Distribution of HIV-Infected Persons, 1990 to June 2003

increase in support for PWHAs, and Lao PDR hopes to be able to gain greater support to fulfill the United Nations General Assembly Special Session on HIV/AIDS Declaration and the Millennium Development Goal.

In collaboration with Family Health International and the Asian Migration Institute at Chulalongkorn University in Thailand, qualitative surveys have been carried out in eight provinces bordering Thailand to elucidate the risk environment for migrant workers, in order to involve them in the next round of surveillance. There have also been negotiations with construction companies to allocate funds for HIV preventive education and STI treatment, as well as for availability of condoms.

A peer education program has been carried out for youths both in and out of school. AIDS and population education are integrated into primary and secondary school curricula, including the Life Skills Program. Cross-border HIV preventive education through Lao-Thai, Lao-Vietnam, and Lao-Yunnan (China) collaborations for disadvantaged students has been funded by the Asian Development Bank and implemented by the Ministry of Education.

SUCCESSFUL STRATEGIES IN THE PAST

EVIDENCE-BASED INFORMATION TO GAIN MORE POLITICAL SUPPORT

In Lao PDR it has been difficult to openly talk about sex and condoms in the past. However, after the results of the behavior and HIV/STI surveys, decision-makers

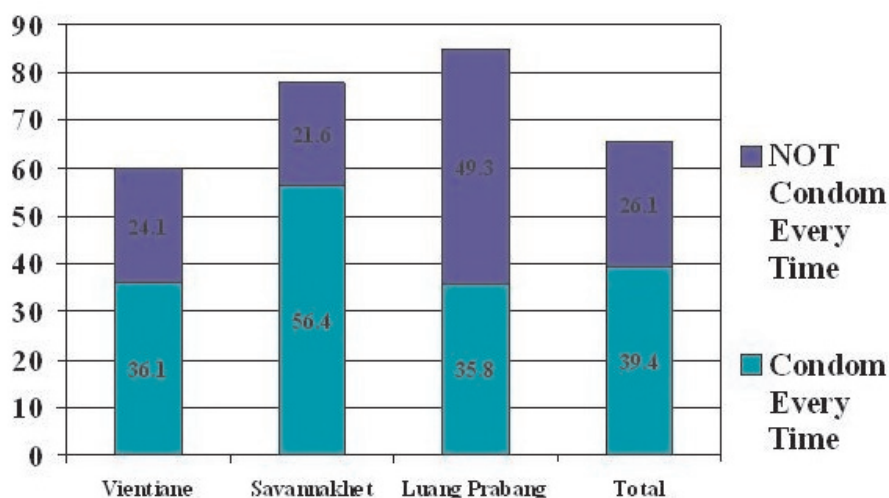


FIGURE 4. Service Women. Commercial partners in the past 12 months and consistent condom use in the past month.

better understood the HIV situation in the country. The National Policy on HIV/AIDS/STI reflected an increasing political commitment by restructuring the National Committee for the Control of AIDS in 2003. HIV has been mainstreamed into other sectors by implementing AIDS education in school curricula and actively involving the Ministry of Transport in the public-private partnership. There are also budget allocations for HIV in infrastructure development.

The National Assembly is involved in the fight against HIV/AIDS. Three training workshops have been organized for National Assembly members. Condom social marketing has been implemented.

NATIONAL PLAN, 2002-2005

Twelve priority strategies have been addressed in the development of the HIV/AIDS/STIs Plan for Lao PDR for 2002 to 2005. The plan was reviewed for formulation of the National Action Plan. Priority managerial issues and cross-cutting themes are taken into account. The final list of priority issues include:

1. Institutional framework development, aiming at ensuring:
 - multisectoral approaches
 - flexibility to deal with new emerging issues
 - decentralized action
2. Policy development and advocacy on issues, including:
 - gender equity
 - nondiscrimination of persons living with HIV/AIDS
3. Capacity building, as needed, in different priority areas

4. Monitoring and evaluation of the entire national response

5. Priority issues for intervention (five top priority issues):

- surveillance and other research
- prevention and treatment of STIs
- prevention of HIV among youth (in and out of school)
- prevention of HIV among mobile populations
- prevention of HIV among service women

6. Other priority issues to be addressed:

- condom promotion and availability
- prevention of HIV through blood safety
- care, support, and treatment of PWHA
- prevention of the transmission of HIV from mother to child
- prevention of HIV among the general population
- prevention of HIV among ethnic minorities
- prevention of HIV among drug users

CONCLUSIONS

Although the Lao PDR has a low HIV prevalence, it is realized that there is a potential for an HIV epidemic. Thus the government has increased its political commitment by restructuring the National Committee for the Control of AIDS (NCCA) to include more sectors and organizations in the fight against HIV infection. Further, the National Plan of Action for HIV/AIDS/STI has been included as one of the three poverty-related national programs in the National Poverty Eradication Program. Interventions are being focused to reduce the high STI prevalence rate in order to reduce the risk of HIV. Coordination and cooperation with international communities have been strengthened. Resources have been mobilized to prevent a more widespread HIV epidemic.

The HIV/AIDS Epidemic Country Paper: Malaysia

Mary Huang and Hisham Hussein

Since the first case of HIV/AIDS was identified in 1986 in Malaysia, the number of infected individuals has increased steadily each year, so that by the end of 2002 the cumulative number of people living with HIV/AIDS was 57,835 (51,256 with HIV and 6,579 with AIDS), with 5,676 AIDS deaths. The epidemic in Malaysia, currently in a concentrated epidemic stage, is primarily fueled by drug use, but there is ample evidence that heterosexual transmission has increased over the last few years. A strategic plan that includes prevention, care, support, and treatment run by both the government and nongovernmental organizations has been in place since the beginning of the epidemic. However, Malaysia will need to take a more pragmatic approach to reduce new infections (which numbered 19 each day in 2002) among the youth on whom the country relies for development. Leaders need to recognize that HIV/AIDS is not just a health issue, but also a socioeconomic concern that can eliminate all the developmental gains achieved over the years. Working together, Malaysians can overcome the epidemic, but there is a need to act quickly and to act in effective ways so that the devastating effects (already evident in the number of AIDS orphans and widows) can be reduced.

Malaysia is a federation of 13 states, 11 of which are situated on Peninsular Malaysia (referred to as West Malaysia) and 2 on the island of Borneo (East Malaysia), as well as three federal territories, situated in Southeastern Asia. The two noncontinuous regions are separated by the South China Sea. West Malaysia is bordered to the north by Thailand and to the south by the island of Singapore. East Malaysia, on the other hand, shares borders with the Sultanate of Brunei Darussalam, as well as the Indonesian territory of Kalimantan. The total population was estimated to be 24.5 million in 2002 (Department of Statistics, 2003b). Although the country is made up of people of many ethnic backgrounds, Malays (all of whom are Muslims) at 50.2% make up the majority of the population, followed by 24% Chinese, 7% Indians, and more than 25 indigenous ethnic groups of East Malaysia who make up 10.9% of the total population (Department of Statistics, 2003a). Islam is the official national religion, embraced by the majority of the people, but other religions such as Buddhism, Christianity, Hinduism, Taoism, Sikhism, and so on are also practiced. From an economic standpoint,

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Malaysia's per capita gross national product is the third highest in Southeast Asia, after those of Singapore and Brunei Darussalam.

Malaysia's population has more than tripled over the past 4 decades, from 7.4 million at the time of independence in 1957 (Leete, 1996) to 24.013 million in mid-2001 (Department of Statistics, 2003b). Like most Asian developing countries in transition, Malaysia has, since independence, undergone rapid changes due in part to economic development, as well as the adoption of new health technologies and services. These have contributed to the reduction in mortality and a slower but nonetheless reduction in birth rates. Despite declining birth rates, Malaysia, due to its previous high birth rates, like most countries in Asia, is also experiencing a population age structure characterized as the "youth bulge."

As Malaysia stepped into the new millennium, the hope of having this group of young Malaysians contribute to development is being threatened by the twin epidemics of drug use and HIV/AIDS. Together they have presented the country with a challenge that few had anticipated. Because the HIV/AIDS epidemic is no longer looked upon so much as a health threat but rather as a socioeconomic threat that can decimate economic gains over time, it has intensified the problem for a young and emerging country such as Malaysia.

According to WHO/UNAIDS classification (World Health Organization [WHO] and Ministry of Health, 2001), Malaysia is considered to be a country with a concentrated epidemic mainly among intravenous drug users (IDUs) (76.3% of people living with HIV/AIDS [PLWHAs]). Data from the Ministry of Health reveal that HIV prevalence is still very low among the antenatal care population (.039% in 2002). The 2001 Consensus Meeting estimated that overall prevalence among female sex workers and sexually transmitted infection (STI) patients of about 5% was slowly increasing (WHO, 2003).

HIV/AIDS IN MALAYSIA

The first case of HIV was detected in Malaysia in 1986. Since that first case, yearly reports of confirmed cases of HIV and AIDS have been increasing. By the end of 1990, cumulative figures of HIV infections had increased to 992 (778 reported in 1990 alone), and there were 18 AIDS cases. By the end of 1995, the number of detected HIV cases of that year was almost six times (4,198) that of the previous 5 years, and those suffering with AIDS swelled to 233. The year 2000 saw 5,107 new cases, averaging almost 14 confirmed cases per day, but in 2002 it was reported that each new day saw an average of 17.4 new cases. In the same period, AIDS figures numbered 1,168 in 2000, and 1,193 in 2002 (Figure 1).

Part of the increase was due the introduction of new programs such as testing of antenatal mothers (which began in 1998) and voluntary testing in the southern state of Johor in 2001, as well as compulsory testing of Muslim couples before marriage in one of the states. However, it cannot be denied that the rate of HIV infection has not shown signs of abating. If anything, it is on the upswing, and unless concerted efforts are made by all sectors of the community, the country will face the threat of losing the economic gains achieved in the last few years. At best, it will slow down the rate of economic development that has taken place.

The majority of those infected are Malays (72.6%), partly because the Malays make up the majority of the total population, and partly because most people who go for drug rehabilitation in government-sponsored institutions are Malays and therefore undergo mandatory testing. Malaysia has been battling drug use for almost 50

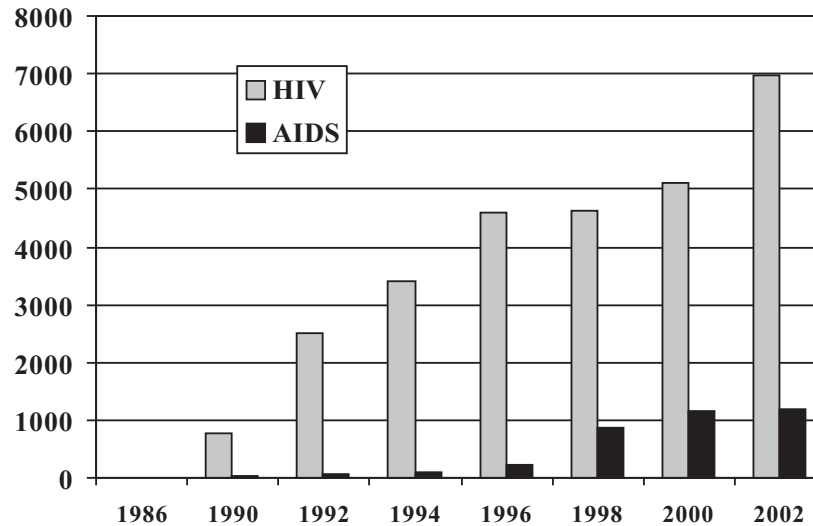


FIGURE 1. Number of reported case by year, 1986-2002.

years, even prior to the discovery of HIV/AIDS. Its geographical proximity to the Golden Triangle and the ability to approach the country by both land and sea has made Malaysia an easy transit point for drug distribution, despite its mandatory death sentence for drug pushers. Infected Chinese make up 15.1% and Indians make up 8.6% of the total number of infected individuals up to the end of 2002 (Ministry of Health, 2003a). Nonetheless, there seems to be a pattern in the mode of transmission by ethnicity: Malays and Indians became infected mainly through drug use, whereas the Chinese, who are more likely than Malays to visit sex workers both within and outside the country, tend to become infected through heterosexual transmission.

Cumulative numbers by gender show that males make up more than 90% of those infected with HIV (93.76%), those who have AIDS (91.8%), and AIDS deaths (93.3%). However, it must be borne in mind that in Malaysia, drugs users who are rounded up by the police go to government rehabilitation centers and prisons, where they are routinely tested, thus boosting the number of PLWHA who are males. What has been the most alarming development in the last 10 years is that the number of women testing positive each year has increased from 2.63% in 1993 to 5.02% in 1997 (prior to the introduction of the testing for antenatal mothers) to 9.01% in 2002 (Figure 2).

Although the mode of transmission has been indicated to be mostly through injection drug use (74.2% in 2002), this perception is partly due to the manner in which data are collected. However, it has become apparent in the last few years that heterosexual transmission has risen, confirming the suspicion that the infection has indeed permeated into the community at large (Ministry of Health, 2003b).

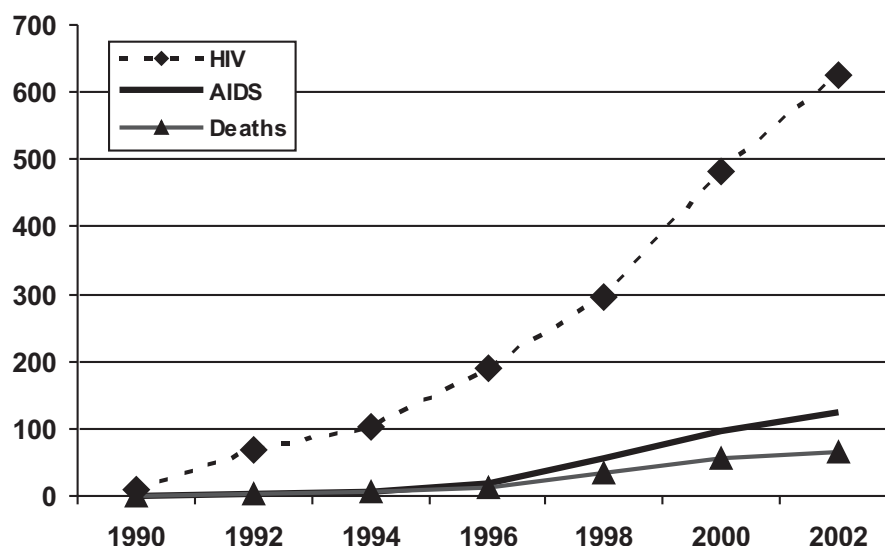


FIGURE 2. Number of women infected by year.

One of the most worrisome aspects about this epidemic is that 80.2% of those living with the virus and 65.9% of those who have AIDS are in the 20-29-year-old age group. For a country that must depend on foreign labor, Malaysia can ill afford to lose such numbers of potential human resources to the epidemic.

Analysis of the cumulative HIV cases up to 2002 by occupation indicated that for 32.8% of the cases, there was no record of occupation, and 14.5% were unemployed. The major occupational groups affected included factory workers (4.8%), fishermen (3.7%), long-distance drivers (2.5%), and government staff and uniformed bodies (2.2%).

THE RESPONSE

NATIONAL RESPONSE

In Malaysia, the lead role in the coordination of HIV/AIDS-related programs has been entrusted to the Ministry of Health. In 1992, the Interministerial Committee on AIDS was set up to advise the cabinet on policies, issues, and strategies to address the epidemic. Chaired by the Honorable Minister of Health, this committee is made up of the ministers of the Ministries of Education, Information, Home Affairs, Youth and Sports, National Unity and Social Development, Culture and Tourism, Rural Development, and the Prime Minister's Department, as well as a representative from the Malaysian AIDS Council. This ministerial-level committee is assisted by two subcommittees, the National Coordination Committee on AIDS and the National Technical Committee on AIDS.

The National Coordinating Committee on AIDS, consisting of the secretaries general of the Ministries of Education, Information, Home Affairs, Youth and Sports,

National Unity and Social Development, Culture and Tourism, Rural Development, and the Prime Minister's Department and the directors of the Department of Islamic Development, the National Drug Agency, and prisons, as well as the president of the Malaysian AIDS Council, provides a forum for the government and nongovernmental organizations (NGOs) to discuss social, economic, cultural, religious, legislative, and all other issues related to the prevention, control, and management of HIV/AIDS in Malaysia.

The National Technical Committee on AIDS, made up of directors of various divisions in the Ministry of Health, as well as the deans of various medical faculties of public universities in the country, is responsible for the formulation, evaluation, and review of all technical aspects of the national HIV/AIDS prevention and control programs. Under this committee are two other subcommittees, the Committee on HIV/AIDS Prevention and the Committee on Patient Management. At the state level, a state action committee on AIDS chaired by the chief minister, with the State Health Department as its secretariat, is responsible for the planning and coordination of activities. A district action committee on AIDS under the chairmanship of the District Officer is responsible for action at the district level.

The machinery in terms of advisory committees has been put in place, but inadequate staff and the lack of a clear understanding of the responsibilities of each of these committees, as well as the irregularity of meetings (very often prompted by the need to provide some answers to issues blown up in the press), leave very much to be desired.

The National Strategic Plan, drawn up through the collective efforts of representatives of various ministries, government agencies, and NGOs affiliated to the Malaysian AIDS Council for the Prevention and Control of HIV Infection was formulated in 1988 and later reviewed in 2001 through a national multisectoral consultation meeting. The vision of the plan is "to ensure that our community lives in an environment that has the least possible risk for HIV infection and to minimize the personal and socio-economic impact of the HIV infection and AIDS" (Ministry of Health, 1998). Objectives of the plan include prevention of the spread of HIV infection; reducing the morbidity of those infected; reducing the impact of HIV/AIDS on individuals, the family, the community, and the nation; mobilizing available resources for the control of HIV/AIDS; and promoting cooperation and collaboration of the various agencies at the local, national, and international levels. Strategies employed include information, education, and communication; promotion of healthy lifestyle practices; early detection; surveillance; provision of appropriate medical/health services; and supportive care at institutional and community levels. Despite the formulation of the National Strategic Plan, efforts to promote and disseminate the plan have been hampered by a lack of resources.

PROGRAMS OFFERED BY THE MINISTRY OF HEALTH

Because HIV/AIDS is treated as a health issue, from the beginning of the epidemic, the Ministry of Health or, more precisely, the AIDS/STD Section created in 1993 under the Disease Control Division, served as the secretariat for the ministry's Technical and Coordinating Committees on HIV/AIDS. Programs offered by the Ministry of Health are guided by the principle that efforts to fight infection must include "prevention, care, and support, all of which are inseparable and mutually reinforcing" (Ministry of Health, 2003b). Surveillance for HIV/AIDS was initiated in 1988 and remains one of the core functions of the Ministry of Health. Under this program, data are collected, collated, and distributed. Routine screening of sex workers,

TB/STD patients, foreign workers, and drugs users in drug rehabilitation centers and prisons is carried out as part of the monitoring process. Stringent screening of all blood and blood products for HIV has been in place since 1986 through the 76 screening centers in the country.

Beginning in 1998, when 49.7% of mothers attending government antenatal clinics were tested, this program has expanded over time, and in 2002, 92.8% of antenatal mothers, numbering 387,208, were screened. The aim of this program is to detect and treat HIV-positive mothers to reduce the rates of transmission to unborn children. All mothers and babies found to be HIV-positive at these clinics qualify for free highly active antiretroviral treatment (HAART).

HIV management at the primary care level started in 2000 and is now available through specially designated health clinics throughout the country. Services provided include counseling, supportive therapy, provision of chemoprophylaxis for opportunistic infections, and antiretroviral therapy. At present, the government provides one antiretroviral medication plus viral load tests free if the patient buys two of the medications on his own. In addition, the Ministry of Health has adopted a modified syndromic approach for management of sexually transmitted diseases (STDs) at the primary care level.

The Ministry of Health initiated programs in prisons and rehabilitation centers that include screening for tuberculosis and HIV/AIDS and educating and counseling inmates on HIV/AIDS. Information, education, and communication on HIV/AIDS programs through lectures, exhibitions, dialogues, and seminars for pregnant women, drug rehabilitation centers, prisoners, factory workers, secondary school students, settlers, and the public in general are continuously undertaken by the staff of the Ministry of Health throughout the country. In 2002 they were able to reach 811,076 individuals. In the area of peer education, the Ministry of Health initiated PROSTAR (Staying Healthy Without AIDS Program for Youth), and by the end of 2002, 833 PROSTAR clubs had been established both at the district level and in secondary schools.

The Ministry of Health, together with the Department of Occupational Safety and Health of the Ministry of Human Resources and the Malaysian AIDS Council, produced a guidebook titled *Code of Practice on Prevention and Management of HIV/AIDS at the Workplace*. They have been conducting seminars and workshops to educate and encourage companies to adopt the safety measures outlined in the Code of Practice (Ministry of Health, 1997).

Although the entire program is rather comprehensive, other programs such as harm reduction should be explored, considering the fact that at the present, more than three-quarters of PLWHA have been infected through sharing of contaminated needles. Even the National Drug Agency does not educate inmates at their rehabilitation centers on the use of condoms, because they perceive it as being tantamount to promoting drug use. They do, however, make exceptions in the case of married HIV-positive inmates, in an effort to protect their spouses. The principle they follow is zero tolerance for drug use.

The same can be said of promoting sex education for young people. Despite the many reproductive health problems (including teenaged pregnancies, abandonment of newborns, and STDs, including HIV/AIDS), which are often highlighted in the media, the government has met with resistance from parents who fear that allowing sex education in schools will encourage their children to indulge in sex before marriage.

NGO RESPONSE

In 1992 the Malaysian AIDS Council (MAC) was established through the initiative of the Ministry of Health to coordinate the efforts of the various NGOs, and to ensure that their limited resources are used efficiently. To date, the MAC has 37 affiliated members, all of which are NGOs that are directly or indirectly involved in HIV/AIDS work. The mission of the MAC is to complement governmental efforts to create an environment free from the negative impact of HIV/AIDS for Malaysians.

Action areas include coordinating the work of NGOs, capacity-building, and advocacy. The MAC ensures that there is no overlapping of programs by affiliates and the government. They also encourage the affiliates to undertake programs they feel are important and effective, and to ensure that the coverage of programs is evenly distributed throughout the country. Through the efforts of the MAC, work among specific at-risk groups is also initiated. To enable affiliates to be effective, capacity-building programs are conducted through training and skills building. The advocacy efforts of the MAC have been greatly appreciated over the years. Being a member of the National Coordinating Committee on HIV/AIDS, MAC represents the views of NGOs and PLWHAs. MAC developed the Malaysian AIDS Charter in 1995 and contributed to the development of the Code of Practice on the Prevention and Management of HIV/AIDS in the Workplace. Being aware of the attitude of Muslim leaders toward sensitive moral issues attached to some of the programs, MAC co-organized the second International Muslim Consultation in 2002 to explore Islamic approaches to the epidemic. The list of recommendations made by participants has since been forwarded to a council of religious experts in the hope that some acceptable Muslim guidelines can be provided to effectively address the epidemic.

At the PLWHA level, the MAC successfully negotiated for free HAART for HIV-positive mothers and children identified at antenatal clinics, and will continue to advocate for treatment of poor PLWHA. The MAC, through the Malaysian AIDS Foundation, continues to seek funds to finance staff and projects in accordance to their mission and vision. To date, three funds that benefit PLWHAs have been made possible through the funds raised by the foundation. They include a business assistance scheme for PLHWA, which loans out small sums of seed money to enable PLWHA to start a small business or upgrade their present business; a pediatric AIDS fund for infected and/or affected children; and a drug assistance scheme, which provides funding for the purchase of one HAART drug (the government already provides one drug free of charge).

CHALLENGES AHEAD

DRUGS/HIV/AIDS

To fight HIV/AIDS, Malaysia must also address the problem of drug use in the country. In 2002 HIV/AIDS increased by an average of 17 new cases per day, and the number of drug users increased by an average of 50 per day. The National Drug Agency estimates that there are more than 350,000 drug users in the country (National Narcotic Agency, 2002). The percentages of IDUs among drug users differ between studies, but a recent consensus meeting convened by the WHO and the Ministry of Health estimated that there could be 170,000 to 240,000 IDUs. In the absence of harm reduction programs for drug users (except education), the battle cannot be won. Drug users have sex, and sometimes their need for drugs forces them into sex work, exposing themselves and their clients and partners to HIV infection. At the present time, even in drug rehabilitation centers, the official policy is zero tolerance for drugs,

and therefore harm reduction education is out of the question. Only married inmates who test HIV-positive receive some education on condom use. At the same time, there is only one NGO that promotes harm reduction among marginalized groups, and even this NGO does not have a needle exchange program. At most drug users are taught how to sterilize their needles. Numerous reports have documented the ability of well-administered needle exchange programs to reduce the prevalence of HIV among drug users.

APPROPRIATE EDUCATION ABOUT HIV/AIDS FOR THE YOUNG

Knowledge about HIV/AIDS is high among the school population. The Ministry of Education has incorporated elements of HIV/AIDS and sex education into both the curriculums on health and physical education as well as moral and religious education (Maimunah, 2003). The Ministry of Health also has the PROSTAR program for young people aimed at increasing knowledge through peer education. However, despite the fact that more than three-quarters of the PLWHA in the country are drug users, not enough has been said about the use of condoms as a means of prevention (for fear of being seen to be promoting sexual promiscuity among the young). In fact, an evaluation of the PROSTAR program by Shamsuddin, Rahim, and Pawanteh (2001) pointed out that 13% of peer educators were not able to give accurate answers on condom use, and they attributed this to the lack of emphasis given to the messages on sex and the use of condoms. At this point in time, most of the knowledge about etiology, effects, and causes of HIV are known by young people, but skills are needed by young people to help them make wise choices. It was only in the last 2 years that the Ministry of Education has embarked on a skills approach to the teaching of HIV/AIDS.

REACHING THE OUT-OF-SCHOOL POPULATION

Many programs aimed at educating young people have been implemented over the years. However, this has only managed to reach the “easy to reach,” those who already have a certain level of education and/or are involved in some organizations. In analyzing a report of school attendance in 2001, it was apparent that boys drop out of school earlier than their female counterparts. For example, in 2001 the male:female ratio of children in primary school was 105.38. This declined to 102.15 in lower secondary school (Forms 1-3), but in higher secondary (Forms 4 and 5), the male-to-female ratio was 92.28; there were more girls in school than boys (Department of Statistics, 2003a). The Ministry of Women and Family Development (2003b) reported that only 78.5% of the boys who graduated from primary school in 1998 went on to Form 1 (first year of secondary school) the following year, in contrast to 81.4% of girls (Ministry of Women and Family Development, 2003a). Therefore, more boys drop out of school, and they do so earlier than the girls. It is this group that is hard to reach, and the lack of adequate education does not prepare them to benefit from normal education channels. Data on drug users provided by the National Narcotic Agency (2002) show that 98% of drug users in Malaysia are males, and almost one third of them had never completed their basic education (a total of 11 years of free education provided by the government). Not only are they vulnerable, they are also not reachable. They must be identified, approached, and educated to protect themselves against HIV.

STIGMA AND DISCRIMINATION

Stigma and discrimination in Malaysia is so high that not many PLWHA dare to reveal themselves. The few who have had the courage to do so were usually from reha-

bilitation centers. Although it is important to put a face to the epidemic, exemplifying ex-drug users reinforces the perception that one only gets infected through drug use and gives others who do not use drugs the belief that they are not vulnerable. At the same time, because there is already so much discrimination against drug users, any infected person is often perceived as having been infected through the use of drugs, illicit sex, or sex with multiple partners. The average person, unless he/she has known a PLWHA, tends to be afraid of them because they know there is no cure for HIV/AIDS. They are not really convinced that it is the PLWHA who should be afraid of them because of their compromised immunity system, rather than the other way around. Knowledge and attitude studies have shown that although knowledge about how an individual can be infected is widespread, and most people advocate for equal rights for PLWHA, few are willing to work with PLWHA, let alone share food or utensils with them.

Stigma and discrimination prevent people who may have been involved in risky behavior from going for testing. Those who are HIV-positive tend to seek treatment from hospitals far from home. In fact, many flood the General Hospital in Kuala Lumpur in an effort to avoid encountering friends and relatives. Some PLWHA are rejected by their families, who fear that having an HIV-positive relative at home will bring shame to the entire family. PLWHA themselves do not want to go home to their families for the same reason.

CARE AND SUPPORT FOR PLWHAs

As increasing numbers of HIV-infected individuals develop AIDS, there is a need to provide care and support for them. Often marginalized, not just by society but by their own families, PLWHA need a place to go to. The few NGOs running homes that take care of PLWHA are mainly found in and around the capital. Other PLWHA throughout the country have no access.

In Malaysia PLWHA are fortunate that they have access to free medical treatment for all secondary infections. Even hospitalization at government hospitals does not cost very much, and if an individual can prove to the medical social workers that he is not in a position to pay for hospitalization, fees can be waived. The challenge ahead will be the increased cost of providing adequate medical care to the increasing number of PLWHA.

CARING FOR INFECTED AND AFFECTED CHILDREN

As more children are orphaned by the epidemic, HIV-positive orphans will find themselves without a place to go to, not because there are not enough orphanages to take them in, but because their staff members are afraid of the spread of HIV and turn them away. The only three NGOs running homes for HIV-infected orphans are over-subscribed. Although UNAIDS estimated that Malaysia has 14,000 AIDS orphans, the perception is that Malaysia does not have that many. Nonetheless, it is recognized that it is a problem that will grow very fast in the near future.

HIV/AIDS: A DEVELOPMENT PROBLEM

Finally, the biggest challenge is to convince the leaders of the country that HIV/AIDS is not just a health problem that should be handled by the Ministry of Health alone. Leaders must acknowledge that it is a development problem that requires the joint efforts of all sectors. The political will to address the problem without blame and discrimination, in ways that have proven (scientifically) to work, will go a long way toward winning the battle against HIV/AIDS. Leaders must stop having the

perception that HIV is caused by moral decadence. Malaysia must learn from the devastating effects of the epidemic in Africa and take appropriate action before it sees the benefits of economic development achieved since independence become nullified by HIV/AIDS.

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HIV in Singapore—Past, Present, and Future

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The first case of HIV infection in Singapore was reported in 1985. Between 1991 and 1998, the number of reported cases of HIV and AIDS increased rapidly before stabilizing from 1999. The epidemiology of the AIDS epidemic in Singapore is characterized by a predominance of male cases (seven to one) and heterosexual transmission. A multipronged control program comprising public education and education of high-risk groups, legislation, protection of the national blood supply, management of cases, and epidemiological surveillance has been put in place. The promotion of condom use among local sex workers has been fairly successful, with very low rates of HIV and other sexually transmitted infections (STIs). However, freelance and potential indirect sex workers such as masseuses and lounge hostesses are a concern in view of their higher prevalence of HIV and STIs. Another concern is the high proportion of cases who are diagnosed only when they develop AIDS. A better understanding of sexual networks among men who have sex with men will enable more effective intervention programs for this group. Fresh innovative approaches are needed to encourage safe sex practices and early screening.

The first case of HIV infection in Singapore was detected in May 1985. This was followed by the first case of AIDS in September 1986. The number of new cases of HIV and AIDS reported to the Ministry of Health increased steadily until 1990 (Chew & Monteiro, 1989). From 1991 through 1998, the number of reported cases of HIV/AIDS increased rapidly, from 42 cases in 1991 (1.5 per 100,000 population) to 199 in 1998 (6.3 per 100,000). The number of new cases has stabilized since then, with between 200 and 240 new cases reported annually. In 2003, 242 new cases of HIV/AIDS were reported, representing an incidence of 7 per 100,000 persons (Table 1 and Figure 1).

EPIDEMIOLOGY OF HIV INFECTION IN SINGAPORE

Epidemiological information on HIV/AIDS in Singapore is obtained from various surveillance systems, namely, (a) an HIV/AIDS notification system, which is a legally required notification system supplemented with additional information collected

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TABLE 1. Incidence of new HIV and AIDS cases in Singapore, 1985–2003

Year	Number		Incidence per 100,000 Population
	New HIV	New AIDS ^a	
1985 – 1990	47	14	0.4 ^b
1991 – 1995	250	108	2.4 ^b
1996	75	64	4.5
1997	105	68	5.5
1998	114	85	6.3
1999	101	105	6.4
2000	118	108	6.9
2001	134	103	7.1
2002	140	94	6.9
2003	144	98	7.0

^aFirst diagnosed as AIDS. ^bAverage annual incidence.

during interview of cases; (b) periodic unlinked HIV sentinel surveillance; and (c) voluntary unlinked anonymous testing.

The mode of HIV transmission at the beginning of the epidemic had been predominantly homosexual or bisexual (Chew, 1993). Heterosexual transmission, however, has been the main mode of HIV transmission in Singapore since the early 1990s. Of the 1,145 new cases reported in the last 5 years (1999–2003), 79% were heterosexual, whereas only 18% of new cases stated that they were homosexual or bisexual. There is a possibility that a proportion of men chose not to reveal their true sexual orientation, as homosexual and bisexual practices are generally not accepted by the wider community. The contribution from homosexual and bisexual transmission could therefore be underreported. Infection via intravenous drug abuse is uncommon, accounting for just 2% of infections. Perinatal infection made up the remaining 1%. There were two cases who were infected through blood transfusion in 1997, which involved a donor who gave blood during the “window period” before antibodies were detectable in his blood (Ling et al., 2000).

The vast majority of infections occurred among men, with the ratio between men and women being seven to one. Almost 80% of cases were between the ages of 20 and 49 years at the time of diagnosis. Less than 2% of cases were below the age of 20 years (Table 2). Over half (60%) of men were single, whereas the majority of women (63%) were married at the time of diagnosis. Reflecting the ethnic distribution of the resident population, most of the cases occurred in Chinese (84%), followed by Malays (8%), and Indians (5%). One quarter of the cases were employed in the manufacturing and technical industries; another 20% were in the service or sales sector.

A significant proportion of reported cases were either symptomatic at the time of diagnosis (40.8%) or progressed to AIDS within 1 year after the diagnosis (9.4%). Considering all cases reported in the period 1985 to 2003, the reported number of HIV/AIDS cases peaked in the 30–39 year age group (36.1%). The long latency period between the acquisition of HIV to the first diagnosis in the majority of cases may explain this distribution.

Similar age distributions have been observed in other countries in the region with effective AIDS notification systems. In Japan, for example, the reported number of HIV and AIDS cases in the heterosexual male population during the period 1985 to

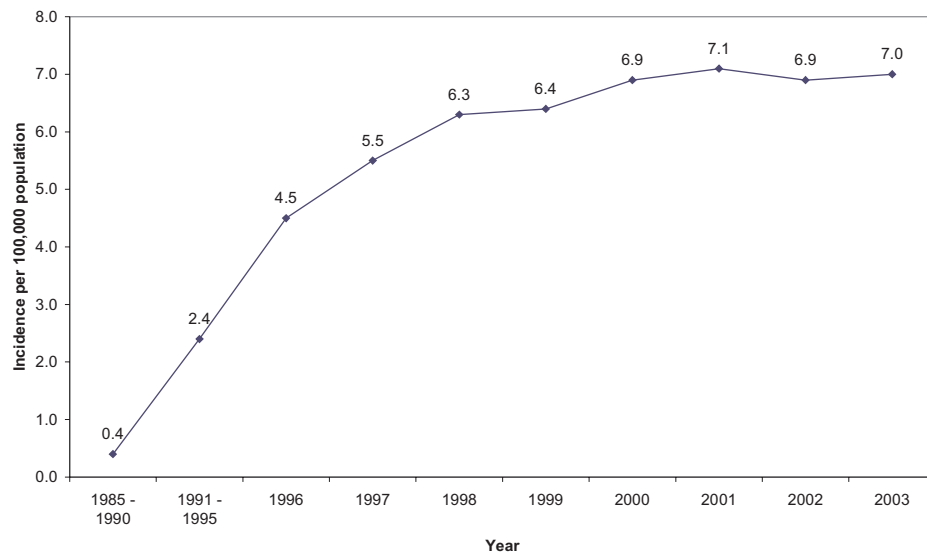


FIGURE 1. Incidence of new HIV and AIDS cases per 100,000 population, 1985-2003.

1997 peaked at 30 to 34 years (16.9%) and 45 to 49 years (17%), respectively (AIDS Surveillance Committee, 1999). Similar to Singapore, approximately 29% of HIV cases and 27% of AIDS cases were in the 30-39 year age group. A higher proportion of older persons (i.e., 30 years and older) was found in both heterosexuals (92.7%) and men who have sex with men (MSM) (83.6%) first diagnosed as AIDS compared to those diagnosed as HIV-positive (76% in heterosexuals and 60.3% in MSM). Our data also suggest that older patients are more likely to be diagnosed with HIV infection late in the course of their illness (i.e., in the form of AIDS). Half or more of persons who were aged 40 years or older at the time of diagnosis first presented as AIDS, compared with 38% among persons aged 30-39 years and 22% among those aged 20-29 years (Table 3) (unpublished data, Singapore Ministry of Health). This is again partly explained by the long period between infection and onset of AIDS.

In contrast to their male counterparts, the age distribution of female HIV/AIDS patients peaked in the 20-29 year age group (37.8%). This may partly be explained by a significant proportion of female cases (22.4%) being diagnosed mainly through contact tracing and thus being identified at an earlier stage of infection.

Overall, the age and sex distribution patterns of HIV/AIDS cases in Singapore indicate that the majority of reported HIV/AIDS cases were middle-aged male patients. This male preponderance in Singapore stands in sharp contrast to other countries with heterosexual transmission-dominated generalized HIV epidemics, where almost half of HIV/AIDS cases are women (World Health Organization, 2004).

In 1989 the Ministry of Health initiated regular unlinked sentinel HIV surveillance to complement the epidemiological information collected through the HIV/AIDS notification system. The HIV seroprevalence rates from 1989 to 2002 among selected sentinel groups, such as antenatal care attendees, were very low (0.02%). On the other hand, a relatively high HIV prevalence was detected among

TABLE 2. Age Distribution (%) of HIV-Infected Cases by Age and Gender, 1985–2003

Age at Diagnosis	Male (<i>n</i> = 1816)	Female (<i>n</i> = 259)	Total (<i>n</i> = 2075)
< 10 years	0.6	3.1	0.9
10–19	0.6	1.6	0.7
20–29	16.2	37.8	18.9
30–39	37.5	26.3	36.1
40–49	25.7	16.2	24.5
50–59	10.8	10.0	10.7
60 and above	8.6	5.0	8.2
Total	100.0	100.0	100.0

sexually transmitted infection (STI) patients (0.56%) and tuberculosis patients (0.66%) (Table 4).

Other epidemiological information used to assess and monitor the HIV/AIDS situation in Singapore includes seroprevalence data among blood donors and those attending voluntary anonymous testing sites. In 2003, over 2600 anonymous tests were carried out, with a HIV-positive rate of 1.4% (AIDS Task Force, personal communication, 2003).

The trends in the incidence of acute STIs such as gonorrhoea and infectious syphilis are also used as an early warning risk indicator for potential spread of HIV infection. Recent trends in gonorrhea and nongonococcal urethritis (NGU) bear close watching as a marker of high-risk sexual practices. The incidence of gonorrhea increased from 37 per 100,000 in 2000 to 51 per 100,000 in 2001, before dropping to 46 per 100,000 in 2002. It then increased to 49 per 100,000 in 2003. Over the same period, the incidence of NGU dropped from 41 per 100,000 in 2000 to 37 per 100,000 in 2001, then rose again to 46 per 100,000 in 2003.

INTERVENTION STRATEGIES

In 1985, around the time when the first HIV case was detected, the Ministry of Health drew up a National AIDS Control Program to prevent and control its spread. Various government agencies and community groups were involved, as the government realized early that combating HIV would require a multisectoral approach. The government also appointed an expert advisory committee, the AIDS Task Force, to advise on medical and scientific matters relating to HIV and AIDS.

Singapore's multipronged control program comprised public education and education of high-risk groups, legislation, protection of the national blood supply through screening of blood and blood products, management of cases, counseling those at high risk for infection, scaling up the prevention and control of conventional STIs, and epidemiological surveillance.

PUBLIC EDUCATION

A key feature of the National AIDS Control Program in Singapore is public education. This is carried out by the Health Promotion Board, the national agency for health promotion. The central message has been that AIDS is deadly, and that the only sure way of avoiding AIDS is to remain faithful to one's spouse and avoid casual sex. Another message has been that HIV-infected persons cannot be identified by appear-

TABLE 3. Presentation of HIV Infection by Age at Time of Diagnosis, 1985–2003

Age at diagnosis (years)	Number	Proportion first Presenting as AIDS (%)
Under 20	32	15.6
20 – 29	392	21.7
30 – 39	749	38.1
40 – 49	509	49.1
50 – 59	223	53.4
60 & above	170	60.6
Total	2,075	40.8

ance combined with the message to avoid casual sex. These educational messages are disseminated via newspapers, magazines (especially those that cater to male readers), and TV, and are usually intensified during the month of December to coincide with World AIDS Day. In schools, topics on STIs and HIV are included in sex education programs run by the Ministry of Education. AIDS education programs are also given to 18-year-old male youths who are recruited for compulsory National Service. To reach out to blue-collar workers, *getai* (a popular Chinese entertainment road show) was used for the first time in 1998 to spread AIDS education messages. A recent initiative to reach out to blue-collar workers has included talks on HIV and STIs, at workplaces, especially in the manufacturing industry.

INFORMATION AND COUNSELING VIA THE INTERNET AND TELEPHONE

Information on HIV and AIDS is provided through the Internet at the website of the Health Promotion Board (<http://www.hpb.gov.sg>) and the Department of STI Control (<http://dsc-sexualhealth.com.sg>). Telephone counseling services are provided by the Health Promotion Board, the Department of STI Control, and Action for AIDS (a non-governmental organization). The latter two telephone helplines are available 24 hours a day. The Department of STI Control also provides answers to questions on HIV and STI risks in relation to sexual practices submitted via email at its website.

EDUCATION OF HIGH-RISK GROUPS

The use of condoms is promoted among sex workers (Lian, Chan, & Wee, 2000; Wong, Chan, Chua & Wee, 1999), and also in places where sexual activities may potentially take place, such as lounges, nightclubs, and massage parlors (Chan & Goh, 1997). Sex workers are taught about the risks of HIV and AIDS and its modes of transmission. They are also taught negotiation skills to persuade clients to use condoms. Some evidence of the success of this program can be seen with the extremely low rates of HIV and STIs such as gonorrhea among sex workers (Goh & Chan 1995). In each of the last 5 years, only 0–0.2% of approximately over 1,000 sex workers attending the public STI surveillance clinic tested positive for HIV; in absolute numbers, there are about 0 to 2 new cases each year. The prevalence of gonorrhea in this group ranged from 0.2% to 0.5% during the same period of time, and that of chlamydia, from 0.8% to 1.6% (unpublished data, Ministry of Health, Singapore).

Educational activities for MSM are carried out by Action for AIDS (AfA), as it would be difficult for government agencies to reach out to this group. MSM activities

TABLE 4. Unlinked surveillance for HIV, 1989–2002

Population Group	Number Tested	Percent Positive
Antenatal cases	12,738	0.02
Hospital patients ^a	10,375	0.05
Hepatitis B carriers	8,649	0.12
Tuberculosis patients ^b	3,176	0.66
STI patients	17,728	0.56

Note. STI = sexually transmitted infection. ^aFrom 1990. ^bFrom 1992.

are not generally accepted by the community at large. AfA's program aims to raise awareness of HIV/ AIDS and to decrease high-risk behavior in the MSM community. The program consists of distribution of postcards containing messages on reducing risk behavior, and distribution of condoms at places frequented by MSMs. There are limited specific HIV/AIDS education programs for injection drug users (IDUs). This is also a difficult to reach group, as drug abuse is illegal in Singapore. However, IDUs account for only 2% of HIV/ AIDS cases reported.

LEGISLATION

Legislation in the form of provisions under the Infectious Diseases Act (2003) covers several areas of importance in the control of HIV. First, the act provides additional safeguards (in addition to common law principles on medical confidentiality) to protect the medical confidentiality of persons infected with HIV. This is important to encourage persons to come forward for HIV testing, despite the strong social stigma associated with the disease. Second, the act is used to help minimize the risk of disease transmission. Legislative amendments were last made in 1999 to help strengthen control of HIV. Among these was an amendment allowing doctors to inform sexual contacts of cases of the person's HIV status if he or she has refused to inform his or her contacts despite counseling. This provision has helped to minimize the risk of HIV transmission as, understandably, there can be a strong reluctance among cases to disclose their condition to their spouses and sexual partners. The other legislative amendments were aimed at further reducing the risk of transmission through blood transfusion.

PROTECTION OF THE NATIONAL BLOOD SUPPLY

The blood transfusion service in Singapore already imposes stringent measures to ensure the safety of transfused blood. This includes a comprehensive donor interview to exclude donors who may be at risk of HIV infection and serological and antigen testing for HIV. Following the unfortunate incident of transfusion-related transmission in 1997, legislative amendments were made in 1999 to increase the penalties for making a false declaration at the blood bank, to increase the deterrence to persons with high-risk sexual behavior from donating blood. Since October 2000, the blood bank employs nucleic acid amplification testing for HIV in addition to serological testing.

ANONYMOUS TESTING

Anonymous testing is provided by AfA and is publicized as a service to persons who fear that they may have been infected but who also fear going for tests in medical clinics. Persons who attend such anonymous testing receive counseling from trained AfA staff.

PREVENTION AND CONTROL OF SEXUALLY TRANSMITTED INFECTIONS

The Department of STI Control is responsible for providing clinical services, epidemiological surveillance, public education, training, and research activities related to STIs (<http://dsc-sexualhealth.com.sg>). The Ministry of Health funds the activities of this department.

TREATMENT AND HEALTH CARE FINANCING

The health care financing system in Singapore consists of government subsidies financed from taxes, employer medical benefits, compulsory personal medical savings (Medisave), and catastrophic medical insurance with copayments for costly hospitalization. Medisave and catastrophic medical insurance are mainly used for hospitalization expenses. Government subsidies are provided for general and specialist outpatient consultation, laboratory and radiological investigations, hospitalization, and drugs on the Ministry of Health's standard drug list. Nearly all patients with HIV/AIDS are managed in the Communicable Diseases Centre. Patients with HIV disease and AIDS have access to heavily subsidized outpatient and inpatient medical services, like all other patients. Antiretroviral drugs do not receive government subsidy, but patients are able to use their Medisave account to help pay part of the costs. HIV and AIDS patients also have access to financial assistance from AfA.

ISSUES OF CONCERN

HIV is a largely preventable disease. A simple low-cost and effective prevention method (the condom) exists. Education campaigns have been ongoing for more than 15 years, and knowledge about the disease and its mode of transmission should be well established among the public. However, more than 200 new cases per year have been reported in Singapore since 1999. There is a possibility that the population at large perceives the risk of HIV infection as negligible and does not believe that something would happen to them. This is exemplified by recent media reports that unprotected casual sex is still fairly common. A weakness in public education activities in Singapore has been the inability to promote condom usage more openly, due to a lack of consensus among community leaders in the past. There are some concerns that such activities would promote promiscuous behavior. Education activities for the general public have thus focused on avoidance of casual sex. A key challenge is to move beyond knowledge dissemination of HIV and its modes of transmission to engaging people at risk so that they modify their behavior to reduce their risk for HIV.

Freelance and "indirect" sex workers are important potential sources of infection. The prevalence of HIV and other STIs as well as inconsistent condom use among freelance sex workers has been consistently higher than among brothel-based sex workers (unpublished data, Ministry of Health, Singapore; Wong et al., 1999). The media, on January 8, 2004, reported that about 100 foreign women had been picked up by the police for questioning from pubs in the eastern part of Singapore for suspected vice activities. These women had come from countries in the region (*The Straits Times*, January 8, 2004). Contact with sex workers outside Singapore is another potentially important source of infection. Effective strategies are needed to promote safe practices in these groups.

Despite a high level of awareness on modes of transmission of HIV, a certain level of uncertainty and fear, and thus potential stigmatization, toward HIV-infected persons still exists (Lim, Teo, Teo, & Tan, 1999). Stigmatization discourages infected

persons from revealing their condition, which in turn may result in further transmission of HIV.

Another major issue of concern is the persistently high proportion of cases who are first diagnosed with HIV infection only when they present with AIDS symptoms. In the 5-year period from 1998 to 2002, 40-50% of new cases of HIV infections were first diagnosed with AIDS symptoms. These persons had presumably been living with undiagnosed HIV infection for several years. In addition to the risk of disease transmission, the tragedy is the missed opportunity for these persons to receive antiretroviral treatment to delay disease progression. Although both the incidence and the proportion of these new AIDS cases have decreased since 2000, much remains to be done to lower these figures much further. We need to understand the barriers that prevent persons from undergoing HIV testing so that we can dismantle these barriers as much as possible. It will also provide opportunities for implementing targeted intervention programs for those who come forward for testing and counseling due to their perceived risk for HIV.

The number of undiagnosed cases is a concern for every country, including Singapore. The ministry has been conducting unlinked surveillance among selected groups in the population since 1989 to assess the extent of undiagnosed HIV infection. The prevalence of positive tests among general population groups has been extremely low, well below 0.1%. As expected, the prevalence of positive tests among higher-risk populations such as patients attending the STI clinic is higher, 0.6%.

Communities that are difficult to reach, such as MSMs and IDUs, are a concern, as interventions cannot be delivered openly. It is also difficult to evaluate the effectiveness of interventions delivered. Nonetheless, new and better ways must be found to ensure that high-risk behaviors in these communities are minimized. An urgent priority is to improve our understanding of the sexual networks in the MSM community so that more targeted interventions could be designed and implemented.

THE FUTURE

The Ministry of Health has set a target of keeping the incidence of HIV/ AIDS to less than 10 per 100,000 in 2010. The target is above the current incidence levels of 7 per 100,000 per year to take into account the possible numbers of undiagnosed cases in the population. However, this target may not be achieved if high-risk sexual behavior is not adequately addressed. There may also be silent epidemics in the MSM community. The challenge will be to find innovative new approaches to put across the "old" message of prevention through avoidance of casual sex and risk reduction through consistent condom usage. The general community must accept more open education activities aimed at promoting condom usage rather than worry that such programs would increase promiscuity.

The focus of these prevention messages has been predominantly on men, in view of the high male-to-female ratio of HIV and AIDS cases. Focus on women should be increased so that they are encouraged to play a stronger role in promoting safe sexual behavior. Better information on current sexual practices and attitudes in the general population, as well as special groups such as youths and MSMs, are also urgently needed to better identify at-risk groups for targeted intervention. Toward this end, the Health Promotion Board is planning a survey to address this information gap. Fresh approaches are especially urgently needed to significantly reduce the proportion of cases that are diagnosed only when they present with symptoms of AIDS.

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Thailand's Response to the HIV Epidemic: Yesterday, Today, and Tomorrow

Warunee Punpanich, Kumnuan Ungchusak, and Roger Detels

Thailand's comprehensive national response to the HIV/AIDS epidemic has been extensively documented since the beginning of epidemic. Substantial progress in the fight against HIV/AIDS has been made because awareness of the problem was raised. Top-level political commitment and multisectoral strategies mobilized funds and human resources to implement the control program at all levels. Behavioral change resulting in increased condom use in brothels on a national scale rose from virtually nil to more than 95%. This was accompanied by a 90% reduction of the sexually transmitted disease rate. In parallel, the rate of new HIV infections dropped by 80%. Despite these achievements, there remains an urgent need to continue efforts to ensure universal and unfailing condom use. Further, Thailand needs to establish pragmatic innovative approaches to reduce transmission, especially among injection drug users, women, and youth, as well as to develop effective strategies for implementation of antiretroviral treatment. Further strategies also need to consider the changing cultural, social, and economic characteristics of the Thai populations.

The kingdom of Thailand is located in the heart of Southeast Asia, roughly equidistant from India and China (Figure 1). It shares borders with Myanmar to the north, Laos to the northeast, Cambodia to the east, and Malaysia to the south. The country can be divided into four natural regions, the mountains and forests of the north, the lush fertile valley of the central plains, the semiarid highland of the northeast plateau, and the tropical islands and long coastline of the peninsular south, bounded on the west by the Indian Ocean and on the east by the South China Sea and the Gulf of Thailand. Thailand covers an area of 513,115 square kilometers, or 200,000 square miles.

The country comprises 76 provinces that are further divided into districts, sub-districts, and villages. Bangkok is the capital city and the center of political, commercial, industrial, and cultural activities. A majority of the 63.1 million citizens of Thailand are ethnic Thai, but there are strong communities whose ethnic origins lie in China, India, and elsewhere. Approximately 93% of Thais practice Buddhism, but

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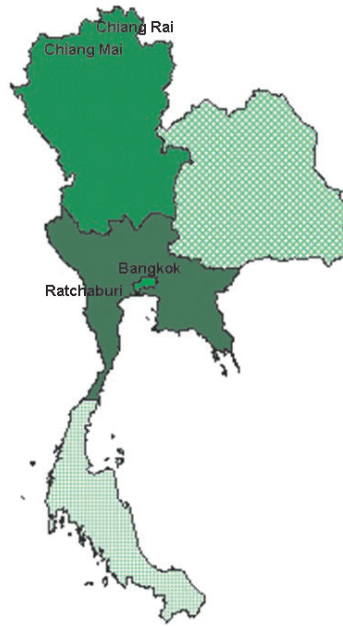


FIGURE 1. The four major geographical regions of Thailand, the northern, central, north-eastern, and southern.

there is complete freedom to practice other religions. Other important religious groups include Muslims (5.3%) and Christians (1.4%). Thailand is a democratic country and a constitutional monarchy (Asian Labour Update, 2001). The Thai economic base has shifted from agriculture (mostly in rural areas) to industry (mostly in Bangkok and the vicinity). In mid-1997, Thailand was hit by the Asian financial crisis resulting from an overheated property market and weakening economic foundation. The Thai economy has now shown clear signs of recovery; the gross domestic product grew by 6.7% in 2003 (“Channel News Asia International,” 2004).

Despite the daunting challenges of the HIV pandemic and the emerging financial and economic crisis, Thailand has made impressive strides in the fight against HIV/AIDS. Thailand was among the first to break the wall of silence in Asia. Over the past 2 decades, the HIV epidemic in Thailand has gone through many phases. Although some paralleled those of other countries, the course of the epidemic in Thailand has also demonstrated unique characteristics. Thailand’s experience shows that a coordinated, nationwide response from key government and nongovernmental organizations (NGOs) targeting the highest risk groups can make an enormous impact in reducing the extent of the epidemic. The pace of the epidemic, however, continues. Based on a review of the data, we present a brief history of the HIV epidemic and Thailand’s initial response, review the recent epidemiological trend, elucidate strategies for HIV prevention, explore the elements of success, describe the lessons learned from the evolving epidemic, and identify strategic priorities for the next phase of the response.

A BRIEF HISTORY OF THE THAI HIV EPIDEMIC

The first case of AIDS in Thailand was officially reported in 1984 in a homosexual man who had returned from overseas and was receiving treatment in Bangkok. Con-

cerned about a potential large-scale epidemic, public health officials conducted a small-scale serosurvey in high-risk populations that included male and female sex workers and injection drug users (IDUs). The results of the survey demonstrated a negligible prevalence of HIV infection, 1-2% in sex workers and 1% in drug users (Limsuwan, Kanapa, & Siristonapun, 1986; Phanuphak, Lochareernkul, Panmuong, & Wilde, 1985). However, in 1988, the prevalence in drug users skyrocketed from 1% to 43% in a single year (Uneklabh, Phutiprawan, & Uneklabh, 1988). In parallel, the epidemic was building up, albeit invisibly, among female sex workers. Serosurveys began to capture low levels of HIV infection among commercial sex workers (CSWs) around the country. The second wave of epidemic spread exploded among CSWs in 1989, when the findings from the first round of HIV sentinel surveillance found that 44% of sex workers in Chiang Mai, a province in northern Thailand, were infected with HIV (Weniger et al., 1991). Equally disturbing, surveillance revealed that the virus had managed to gain a foothold in each of the 14 provinces included in the system. By the end of 1989 there was a sharp rise in the reported number of HIV-seropositive men attending STD clinics in all provinces included in the sentinel surveillance. Recognizing the possibility of a large-scale epidemic, the system was expanded to all provinces by the end of 1990. At almost the same time, the Survey of Partner Relations and Risk of HIV Infection, the first national survey on risk behaviors, was conducted. The finding indicated that 28% of Thai men between the ages of 15 and 49 admitted to either premarital or extramarital sex in the past year, with three quarters of those men having paid for sex during that time (Sittitrai, Phanuphak, Barry, & Brown, 1992). Thus, it became clear that heterosexual transmission would become the predominant mode of HIV acquisition. As predicted, the epidemic in CSWs launched the subsequent wave of the epidemic in male clients, as indicated by a prevalence rate of 4% among military conscripts in 1993 (National HIV Surveillance, Thailand, 1996). The subsequent wave of HIV transmission from male clients to their wives and children was evident when HIV prevalence among women attending public antenatal clinics rose from 0.8% in 1991 to 2.3% in 1995 (*National HIV Serosurveillance, Thailand, 1989-1996*, 1996).

THAILAND'S RESPONSE TO THE EPIDEMIC

Thailand's response to the epidemic was influenced by many factors, including administrative and legislative decisions shaped in response to available data. After the first AIDS case was recognized, AIDS was declared a severe communicable disease. Initially, physicians were required to report all patients with HIV infection, including asymptomatic cases, to the Division of Epidemiology, Ministry of Public Health. In 1989 the National HIV Serosurveillance Program was established to monitor progression and evaluate control measures. The system monitors HIV prevalence both in high-risk populations and in the general population. The monitoring approaches included the changing trends of behavior, HIV infection, STDs, and AIDS. The system had been tailored to the corresponding phases of the epidemic. By identifying high-risk groups and behavioral trends as a high priority, the program had provided a rational basis for resource allocation and evaluation of the control programs (Saengwonloey, Jiraphongsa, & Foy, 2003). However, mandatory reporting of HIV infection created stigmatization and breached human rights, and was eventually abolished later in 1991.

The first round of sentinel surveillance in 1989 raised HIV/AIDS awareness and transformed public perception. Faced with an unprecedented challenge that threat-

ened the very fabric of Thai society, the HIV/AIDS control program was moved from the Ministry of Public Health to the Office of the Prime Minister, and HIV/AIDS control became a national agenda by 1990 (World Bank, 2000). This reorganization signified political commitment, and the budget was increased sharply from less than U.S.\$1 million in 1988 to \$44 million in 1993 (Owens, 1991).

In 1990 the Thai Red Cross Society conducted the first behavioral survey at the national level. Recognizing the pervasive extent of risk behavior throughout Thai society, the Thai government launched a massive public information campaign on AIDS. HIV/AIDS warning messages were publicized through all types of media. They were aired regularly and repeatedly on television and radio as part of the national strategy in 1991 (Lyttleton, 1996).

School education on AIDS was initiated in 1990. At this time, the Thai HIV/AIDS research community was actively involved in conducting quantitative and qualitative studies of risk behavior and its determinants. These studies demonstrated that the idea of individual risk that had been dominant in the beginning of the epidemic was too narrow to address the underlying social, cultural, and economic forces driving the epidemic in Thailand (Celentano et al., 1993; Ford & Kittisuksathit, 1994; Havanon, Bennett, & Knodel, 1993). Thus, the concept of individual risk was broadened to include the influence of the social environment. In Thailand AIDS education is incorporated into the primary level schools as "life experience" and "character and development." Positive attitudes and solving personal and social problems are addressed. On the secondary school level, the focus is AIDS information and on teaching students how they can protect themselves from sexual diseases. AIDS education strategies evolved to include lifeskills empowerment in Thai youth rather than just behavior modification so that their culture, peer pressure, and norms would promote safer sex behavior (Finger, 1993).

In response to the growing prevalence of HIV among IDUs and CSWs in Chiang Mai, the government of Thailand launched a massive expansion of its HIV/AIDS prevention and control program in 1991. Although prostitution was and still is illegal in Thailand, the widespread presence of sex establishments has assumed the dimensions of a commercial sector (Boonchalaksi & Guest, 1998). The strategic approach was thus to encourage universal condom use to prevent HIV transmission rather than to suppress commercial sex. The majority of the sex industry in Thailand is brothel based, with most transmission occurring in easily located direct sex establishments. The success of a pilot project, the 100% Condom Program, first conducted in Ratchaburi Province in 1989, was expanded nationally in 1991-1992. The program was initiated to enforce universal condom use in all commercial sex establishments (Hananberg, Rojanapithayakorn, Kunasol, & Sokal, 1994). The program enlisted the cooperation of sex establishment owners and sex workers to encourage all clients to use condoms when engaging in sex. Information, education, and communication programs were first initiated to promote consistent condom use. However, some clients refused to use condoms, and ultimately workers were pressured to engage in unprotected sex. In response, public health officials, police, and representatives of local governments met with the owners of commercial sex establishments. Owners were encouraged to withhold sex services from clients who refused to use condoms. Establishments were monitored, penalized, and shut down for failure to comply with the program. Compliance was monitored through an extensive network of STD clinics and the public health service's list of sex establishments, by tracing through male STD patients to establishments where they presumably were infected. Monitoring ap-

proaches also included sending volunteers to test compliance, observing STD infection rates among sex workers receiving routine examinations at local clinics, and monitoring the number of condoms provided per establishment. The government supplied almost 60 million free condoms a year to support this activity (Rojanapithayakorn & Hanenberg, 1996). This resulted in a marked increase in condom use observed in the establishments. Subsequently, a 90% reduction in the rate of STDs was reported (UNAIDS, 2000).

Recognizing the profound impact of HIV on public health and economic and social development, the government expanded the responsibility for HIV prevention to other sectors and NGOs. The Multisectoral AIDS Prevention Strategy (MAPS) of Thailand, since 1991, has played a vital role in strengthening social inclusion by engaging NGOs, civil society, and other sectors in policy formulation and priority-setting (Elkins, Kuyyakanond, Maticka-Tyndale, & Haswell-Elkins, 1996). This role in priority setting and consensus building at a societal level catalyzed the process of political mobilization and may have been the most crucial contribution of the national-level multisectoral organizations.

Given that HIV/AIDS prevention requires a modification of the prevailing sexual conventions, which often raises sensitive social and cultural issues, several academic and social advocacy groups have focused on behavioral intervention. A field trial in the Royal Thai Army in 1993-1995 demonstrated that intensive interventions in structured institutions successfully reduced the risk of heterosexual of HIV transmission (Celentano et al., 2000). In 1995 Thailand's serosurveillance system was supplemented by behavioral surveillance to provide fuller assessment of the transmission dynamic. Sentinel sites were set up in 20 of 76 provinces. The target population included military conscripts, male and female factory workers aged 15-29 years, secondary schools, and pregnant women attending antenatal clinics. Initially, surveys were conducted annually, including 350 persons per sentinel population per province, using nonprobability sampling and a self-administered questionnaire (AIDS Epidemiology Section, 1999; Tonghong, Saenwonloey, & Juntasiriyarkorn, 1999). A method to further refine the system is now under way to ensure better validity and reliability of the data. One technique is to use two-stage cluster sampling to obtain a representative sample. A second technique is to use a tape recorder and earphones to administer the questions (Lertpiriyasuwat, Plipat, & Jenkins, 2003), which helps respondents be more truthful in their responses.

Data from different surveillance sources were used to supplement each other in tracking the spread of HIV and also to evaluate program effectiveness. For example, the incidence of STDs at all government clinics was used to measure the decline of STDs. Reported condom use among sex workers was used to monitor the progress of the 100% Condom Program. The prevalence of HIV among blood donors was used to monitor the effectiveness of self-referral at the blood bank, and the prevalence of HIV among pregnant women and conscripts was used to monitor the overall impact of control programs targeted to the general population.

In the late 1990s the epidemic had gravitated toward adolescents and young adults. There was a growing demand for high-quality data to guide public policy and formulate preventive measures among Thai youth. Efforts to improve data validity using audio-computer-assisted self-interviewing and noninvasive specimen collection methods were evaluated. These studies demonstrated a relatively low level of condom use among adolescents and young adults with all partner types (8.0% with recent steady partners, 28.5% with casual partners, and 30.7% with commercial sex part-

ners), and only 24.3% reported condom use during their first sexual encounter (Jenkins et al., 2002; van Griensven et al., 2001).

At the early stage of the epidemic, when antiretrovirals (ARVs) were expensive and had limited availability, treatment and prevention of opportunistic infections was the only available option for the majority of symptomatic HIV patients. However, in 1992, the ARV supply program in Thailand was initiated primarily for low-income groups (Kunanusont, Phoolcharoen, & Bodaramik, 1999). Although the budget had increased, coverage had decreased, due to the growing number of AIDS cases as the epidemic progressed. The rapid advances in HIV treatment, as well as the advent of highly active antiretroviral therapy (HAART), resulted in higher drug costs, which were not affordable for most people. Many HIV-infected patients received ARV through donations either directly to patients, through NGOs, or through partly subsidized government funds. The first ARV trial in Thailand started in 1992, when zidovudine (AZT), became available in two major medical centers in Bangkok (Phanuphak et al., 2000). In 1996 Thailand's first full-scale HIV clinical trials center, the HIV Netherlands Australia Thailand Research Collaboration, was established at the Thai Red Cross Society. The main purpose of the tripartite collaboration was to conduct clinical intervention studies that would yield answers to locally and regionally relevant research questions (Phanuphak, Cooper, & Lange, 1998). The collaboration was subsequently expanded to include participation in multinational trials and thus strengthened the public health infrastructure, as well as generating substantial awareness and interest in training for good clinical practices in several medical centers.

Recognizing the devastating impact of HIV/AIDS on the lives of children, in 1996 the Thai Red Cross Society took a major step to prevent vertical transmission by launching a donation campaign providing free AZT to HIV-infected pregnant women. The program is under the patronage of Her Royal Highness Princess Soamsawali. So far, it has successfully reduced the vertical transmission rate to only 3.3% (Thisyakorn et al., 2000). Recently, the program was honored by UNAIDS as one of the best programs for reducing mother-to-child HIV transmission (Rongkavilit, Thisyalorn, & Phanuphak, 2000).

Since then, further progress has been made in reducing vertical transmission. In the mid-1990s, a randomized controlled trial was carried out to evaluate the effectiveness of providing short-course AZT prophylaxis to prevent mother-to-child HIV transmission in Bangkok. This study demonstrated that AZT reduced vertical transmission of HIV by 50% (Shaffer et al., 1999). Following this study, a number of pilot programs were initiated (Thaineua et al., 1998). The successful pilot projects ultimately led to nationwide expansion. In 2000 Thailand became the first resource-limited country to implement a national program for preventing mother-to-child HIV transmission. A search for novel strategies is now underway to address the needs of mothers who receive little or no prenatal care or are not offered HIV testing prenatally.

The Thai Government Pharmaceutical Organization (GPO) successfully launched the first generic antiretroviral therapy, AZT, into the market in 1997, followed by didanosine (ddI) and stavudine (d4T) in 2000. By 2001, generic stavudine and nevirapine were available through the GPO. Although Thailand established universal health insurance coverage in October 2001, HAART was not included in its benefit package. However, the public outcry to include HAART universally in the benefit package, regardless of a patient's economic status, was overwhelming. In re-

sponse, the Public Health Minister, on the eve of World AIDS Day 2001, announced that the government had agreed to include ARVs in its health plan and HAART would be included in the benefit package in the future ("HIV Drugs Included," 2001). The plan aims to provide free ARVs, as well as to standardize the associated medical services and qualifications of physicians.

For full coverage and equitable access to ARVs to be realized, substantial effort has been made to improve financial feasibility. Beginning in April 2002, the generic form of ARVs—d4T, 3TC, and nevirapine—a three-in-one combination called GPO-VIR, was successfully introduced (Cohen, 2003). This generic version of ARVs provides not only a more affordable regimen but also a convenient dosing schedule—only one pill two times a day, at a cost of about U.S.\$30 per month. By the time Thailand hosts the 15th International AIDS Conference in July 2004, the government plans to make GPO-VIR available to 50,000 of Thailand's total of 600,000 HIV-infected patients (Cohen, 2003).

In 1993 the National Plan for HIV/AIDS Vaccine Development was established to catalyze a number of HIV/AIDS vaccine initiatives. The activities of the national plan included consensus building, technical cooperation, capacity building of Thai scientists, establishing national research networks, and promoting international collaboration and technology transfer to evaluate HIV/AIDS vaccines. By the end of 2003, 10 HIV preventive vaccine trials were being conducted in Thailand (AIDS Division, Bureau of AIDS, TB and STIs, 2003).

Recently, a number of concerns have been raised regarding the conduct of HIV vaccine trials in developing countries such as Thailand. One of them is the need to ensure that methods of recruitment and motivation are conducted in an ethical manner. These methods need to ensure truly informed and voluntary consent. Second, it is essential to acknowledge the potential behavioral and social side effects of participating in the trial. These include, on the one hand, the possibility of increased risk behavior in response to a perception of protection and, on the other hand, the potential for social discrimination (Jenkins et al., 1998; Thapinta et al., 1999). In response, the Public Relations Network was developed in 2003 as a part of the National Plan for HIV/AIDS Vaccine Development to address the issues related to the general population's acceptance, awareness, and understanding of HIV vaccine trials. Existing research demonstrated that the majority of volunteers reported both altruistic and mixed motives, and that recruitment is a dynamic process with variation in volunteers' commitment over time (Thapinta et al., 1999; Thapinta et al., 2002). No problems with discrimination in employment, health care, or insurance were documented (Jenkins et al., 1998). These findings provide further evidence for the feasibility of conducting prophylactic HIV vaccine trials with low-risk volunteers in Thailand.

ELEMENTS OF SUCCESS

The most compelling evidence of Thailand's effective response to HIV/AIDS is the widespread reduction in unsafe sexual behavior. Associated with this was the extremely impressive reduction of STD incidence and HIV seroprevalence among military conscripts (Epidemiology Division Ministry of Public Health, 2004). After the "100% Condom Program" was enacted in 1989, condom use in brothels reached over 90% (Figure 2) (UNAIDS, 2000), and according to the most recent estimate, the rate of new infections has dropped by 80% since 1991 (Thai Working Group, 2001).

The success of the 100% Condom Program in reducing risky sexual behavior was illustrated by the dramatic decline in the reported number of newly infected male STD

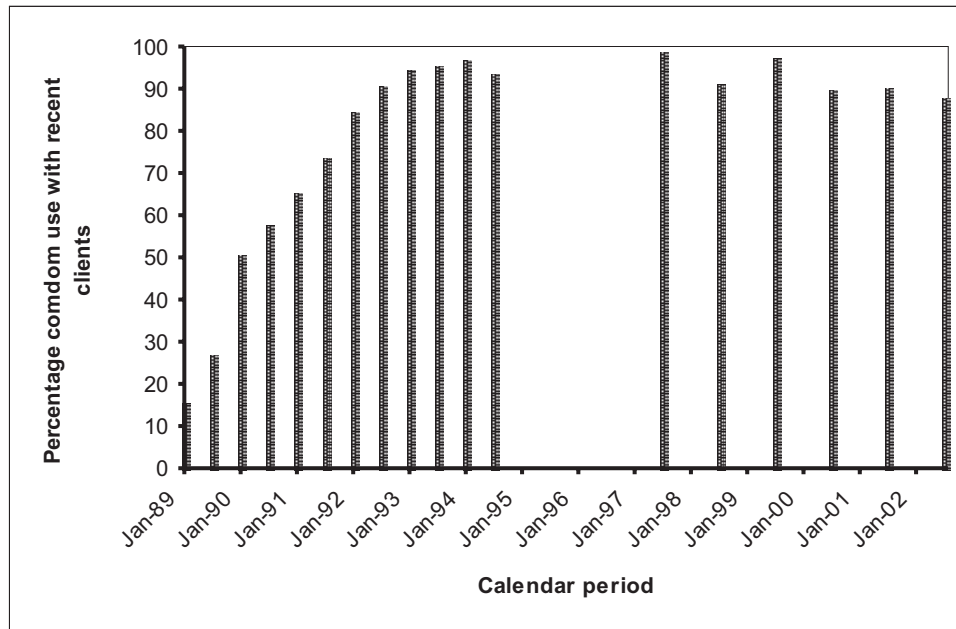


FIGURE 2. Increase in condom use with recent clients, as reported by sex workers at direct sex establishments in the sentinel serosurveillance.
Note. From Ministry of Public Health, Thailand.

patients visiting public clinics and over a 90% reduction of STD infection rates in both male and female patients (Figure 3). Despite the fact that the number of newly infected STD cases began to decline in 1986 before the 100% Condom Program was enacted, a substantial acceleration in the decline began in 1989. The early decline is believed to correspond with the introduction of more effective drugs for STD treatment (Mugrditchian, Benjarattanaporn, Chitwarakorn, & Rojanapithayakorn, 1993). Correspondingly, a drugstore survey in 24 provinces reported a more than 80% decline in the sale of antibiotics used for STD treatment over a 5-year period and a continued increase in the sale of condoms. These changes implied that condoms were being used and the reported drop in STDs was real (Chamrathirong et al., 1999).

HIV prevalence among military conscripts dropped from 4% in 1993 to 0.5% in 2003 (Figure 4) (Epidemiology Division, Ministry of Public Health, Thailand, 2004).

There are, however, certain aspects in military life that may encourage higher risk behaviors in comparison to the general population. These include single status, living outside the family structure, peer pressure, and the availability of commercial sexual outlets (London, VanLandingham, & Grandjean, 1997).

The declining rate in this group was confirmed by the prospective cohort study of 1991 to 1995 (Celentano et al., 1998). The decline in annual incidence is strongly associated with increased condom use, reduction in visits to sex workers, and reduction in the incidence of STDs. A similar trend was also evident among pregnant women attending antenatal clinics at government hospitals (Figure 5). The HIV prevalence in this group rose from 0.8% in 1991 to 2.29% in 1995 but then declined to 1.18% in 2003 (Epidemiology Division, Ministry of Public Health, Thailand, 2004).

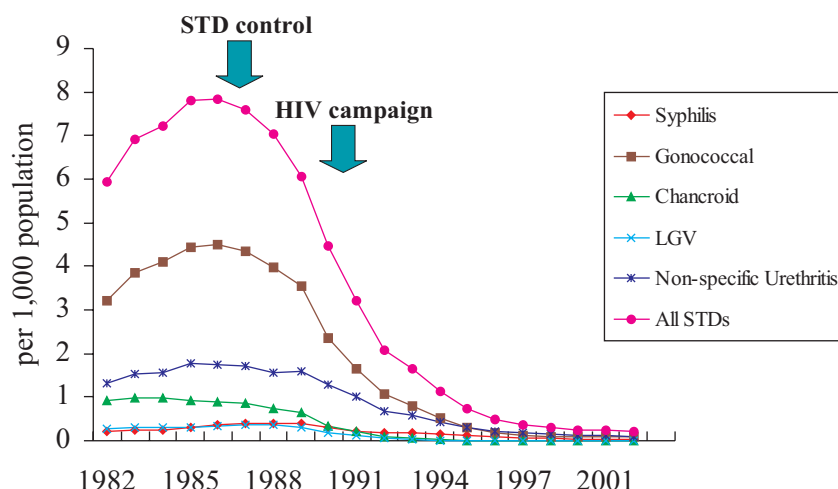


FIGURE 3. Incidence of sexually transmitted diseases per 1000 population, as reported by government health services, Thailand 1982-2002.

Note. Venereal Diseases Division, Department of Communicable Diseases Control, Ministry of Health.

RECENT EPIDEMIOLOGICAL TRENDS AND STRATEGIES FOR HIV PREVENTION

NUMBER OF PEOPLE AFFLICTED WITH HIV/AIDS

It had been projected that by the end of 2004 there would be approximately 1,070,000 adults and children infected with HIV in Thailand since the start of the epidemic in 1985, that 501,000 of them would subsequently die of AIDS, and that there would be 572,000 people currently living with HIV/AIDS, including 24,000 children (0-15 years of age) and 548,000 adults (39% females), and that 19,400 new infections would occur in 2004 (Thai Working Group, 2001).

HIV PREVALENCE RATES IN DIFFERENT POPULATIONS

In 2003 the prevalence of HIV among adults was estimated at 1.2% (Thai Working Group, 2001). Based on the results of the HIV serosurveillance in mid-2003, the prevalence of HIV among pregnant women was 1.18%, and in conscripts aged 18-25 years it was 0.5%. However, the prevalence of HIV in some specific populations is higher; for example, 10.87% in direct female CSWs and 45% in drug users who attended treatment clinics (Epidemiology Division, Ministry of Public Health, Thailand, 2004). A cross-sectional study conducted among 1,121 Thai men aged 18 years or older who resided in Bangkok and who reported anal or oral sex with a man during the past 6 months revealed an HIV prevalence of 17% (F. van Griensven, personal communication, January 8, 2004).

Strategic priorities in the early phases of the epidemic focused mainly on female sex workers and their male clients. Little was known about sexual risk behaviors

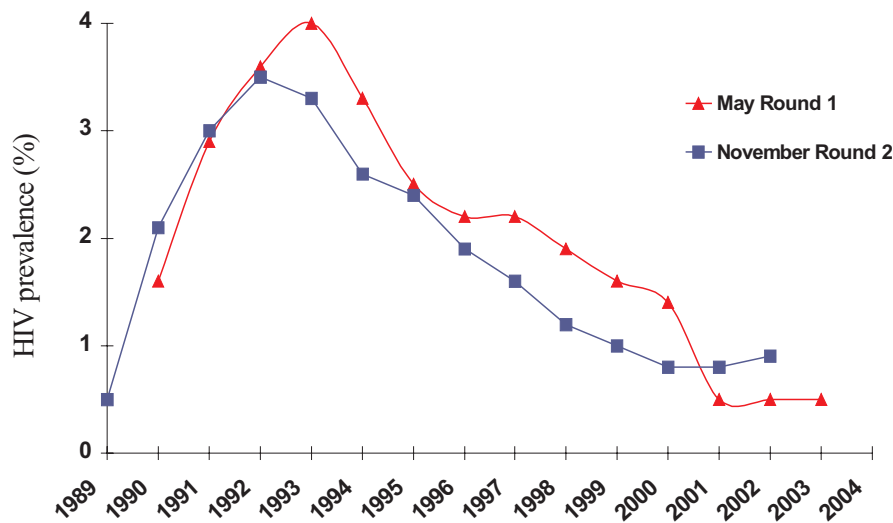


FIGURE 4. HIV prevalence among male conscripts at the age of 21 years, Thailand, 1989-2003.

Note. Royal Thai Army, 2004.

among young Thai women who are not sex workers. Recent evidence suggests there has been a resurgence in unsafe behaviors among the younger generation. Available data on sexual risk behavior among young Thai women indicate an increase in the levels of premarital sexual experience, the majority of which is unprotected (Bond, Valente, & Kendall, 1999; Mills et al., 1997; Podhisita & Pattaravanich, 1995). Subsequent analyses have also demonstrated a substantial increase in HIV transmission among the population of women aged 20-24 years (van Griensven, Godfried, Surasiengsunk, & Panza, 1998). Contributing factors include an increase in premarital sex, having partners whose sexual networks include female sex workers, peer pressure, gender inequality, and social attitudes surrounding sexual activity that limit communications regarding sexual practices (Bond et al., 1999; Cash, Sanguansermisri, Busayawong, & Chuamanochan, 1997; Ford & Kittisuksathit, 1994; Havanon, 1996; Havanon, Bennett, & Knodel, 1993; Knodel, VanLandingham, Saengtienchai, & Pramualratana, 1996; Mills et al., 1997; Podhisita & Pattaravanich, 1995; Weiss, Whelan, & Gupta, 1996; Xenos, Pitaktepsombati, & Sittitrai, 1993; Xu et al., 2000). Furthermore, recent investigations have identified factors that might place young Thai women at risk for HIV/STD and unintended pregnancy. These include unprotected sexual activity, sexual coercion, drug and alcohol consumption, and low levels of contraceptive use (Allen et al., 2003). Also, low levels and inconsistency of condom use were common in both sexually active young men and women (Jenkins et al., 1999; van Griensven et al., 2001), because the majority of the subjects did not perceive themselves to be at an elevated risk for acquisition and transmission of HIV/STDs. The fact that high-risk groups such as sex workers and their clients have been disproportionately represented in the Thai HIV epidemic might have inadvertently distorted these Thai youths' self-perception of their vulnerability to HIV/STD acquisition (Allen et

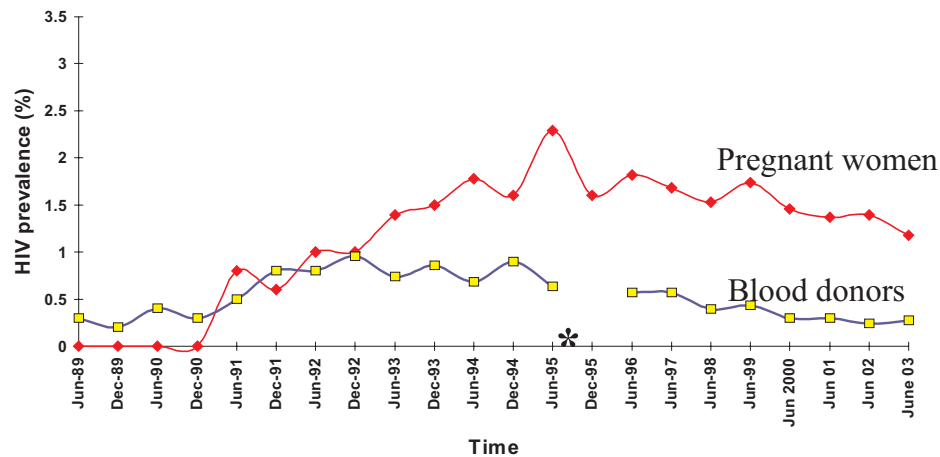


FIGURE 5. Trend of HIV prevalence among pregnant women and blood donors, Thailand, 1989-2003. *Switch from biannual (June and December) to annual in June since 1995. From Sentinel Serosurveillance, Division of Epidemiology, Ministry of Public Health (2004).

al., 2003). Consistent findings were found in recent investigations on the changing trend of HIV risk behaviors among young Thai men since the implementation of the 100% Condom Program. Although sexual encounters with girlfriends were increasing and becoming more frequent than with CSWs, the level of consistent condom use with CSWs was progressively declining from 60% in 1994-1995 (Jenkins et al., 1999) to 40% in 1999 (van Griensven et al., 2001).

Taken together, these circumstances suggest that adolescents and young adults in Thailand, particularly young Thai women, constitute a growing vulnerable segment of the population that could become a driving force for the future spread of the epidemic. As a nation, Thais are cognizant that their future lies in protecting adolescents and youth from the perils of this epidemic. Although important successes have been achieved, there are still gaps in the existing campaign. There is a need to expand HIV prevention efforts to our young generations.

FUTURE CHALLENGES

The HIV/AIDS epidemic in Thailand continues to evolve. The incidence of new infections has declined, due largely to an effective national intervention campaign, the 100% Condom Program. In spite of these achievements, closer analysis reveals a troubling upward trend of HIV risk behaviors in certain subpopulations, particularly young women (van Griensven et al., 1998), homosexual men (Beyrer et al., 1995; Beyrer et al., 1998), and IDUs in some regions (Epidemiology Division, Ministry of Public Health, Thailand, 2004). Wide-scale implementation of multidimensional strategies to cope with the evolving epidemiological trend of the disease in a resource-limited setting poses a formidable challenge, as well as a unique opportunity.

MAINTAIN AND REINFORCE THE SAFE SEX CULTURE ACROSS BROADER RANGES OF PARTNERS

Of paramount importance in the fight against the HIV epidemic is maintaining a strong commitment to sustaining unfailing, consistent, and universal condom use. When Thailand was hit by the Asian financial crisis in August 1997, public expenditure on the national AIDS program declined by 28%. Between 1996 and 1999, the number of free condoms distributed by the government declined by about half (World Bank, 2000). Indicators since the mid-1990s, however, suggest a potential resurgence of HIV infections if condom use declines. Over time, lower priced brothels have been forced to close down due to both a reduction in their number of clients and official pressure. Although the prevalence of organized (brothel-based) commercial sex has been reduced, commercial sex has not been eliminated. Instead it has moved to environments that are more difficult for the government to reach and effectively implement prevention efforts. The lack of government oversight may result in less consistent condom use (Lyttleton, 2000). This segment of commercial sex, including "indirect" sex workers in massage parlors, bars, and restaurants (Komatsu et al., 1996), "undocumented" sex workers trafficked from neighboring countries (Beyrer, 2001; Gupta, 1999), and male sex workers (F. van Griensven, personal communication, Jan 8, 2004), are difficult to target, and are thus at high risk for acquiring and transmitting HIV. Adding to this problem is that people in general underestimate the risk that can accrue from non-commercial casual sex (Lyttleton, 2000).

A number of behavioral studies demonstrate the increasing level of premarital sexual experiences among young and unmarried Thais. These findings suggest that there are changes occurring in the course and direction of HIV epidemic in Thailand (Bond et al., 1999; Lyttleton, 2000; Xu et al., 2000, van Griensven et al., 2001; Jenkins et al., 2002).

DEVELOP PRAGMATIC APPROACHES TO REDUCE TRANSMISSION BY IDUs

Renewed strategic approaches and a broader government commitment to countering the threat posed to society by illicit drugs should be introduced. Of particular concern is that an increasing proportion of young Thai men report injection drug use, increasing from 1% in 1991 to 4.2% in 1997. This is disturbing, because IDUs constitute a rapidly growing segment of new infections and carry the highest infection rate at 40% to 50% (Epidemiology Division, Ministry of Public Health, Thailand, 2004). Thus, they are again becoming a reservoir for transmitting HIV to other segments of the population. Scientific studies have demonstrated the effectiveness of harm minimization programs (Loxley, 2000). Nevertheless, the pragmatic approach that effectively curbed heterosexual transmission via commercial sex, which is also illegal in Thailand, has not yet been adopted. Acknowledging effective strategies and rapid translation of scientific findings into public health policy and practice is a vital step in slowing the growth of the epidemic.

PROMOTING ENABLING ENVIRONMENTS AND EMPOWERING SOLUTIONS

Recognizing that the status of women in Thai societies may make it difficult for them to take measures to protect themselves from HIV infection, we need to ensure that the specific needs of women are taken into consideration. Factors that are conducive to higher risk of HIV infection in women stem from susceptibility to infection, less control over risk behaviors, and roles as primary caregivers. Gender inequality, soci-

etal attitudes surrounding sexual activity and drug use, and the stigma attached to HIV and AIDS continue to seriously impede HIV prevention efforts and impair the efficient use of resources. Efforts to overcome social barriers and remove remaining political barriers will be increasingly important. Interventions need to be targeted to adolescents and young adults, particularly women, as well as marginalized populations such as IDUs, sexually active homosexual men, and indirect sex workers who are increasingly affected by the epidemic. Efforts should be made to involve these segments of the population in program planning and delivery to promote health-enhancing and harm-minimizing behaviors. Additionally, we need to ensure that the gaps in prevention, health promotion, and treatment initiatives are minimized.

RESEARCH ON COST-EFFECTIVE WIDE-SCALE IMPLEMENTATION OF ANTIRETROVIRAL TREATMENT

As the epidemic progresses, there is a growing need for strategic research, which plays a vital role in informing policy development and planning of health care delivery. As the number of symptomatic HIV-infected patients increases, the issues of management and care become a pressing priority. Concerns have been raised about how to optimize limited resources and balance the need between prevention and treatment. It has been estimated that each year up until the end of 2006, over 50,000 Thais will die from AIDS-related causes. Over 90% of these deaths will occur in people aged 20-44 years, the most productive sector of the workforce (CDC News Update, 2003).

At the beginning of 2003, Thailand received U.S.\$209 million from the Global Fund to fight AIDS, tuberculosis, and malaria (APEC Emerging Infections Network, 2003). This funding is to be used to provide ARVs for AIDS patients, among other HIV/AIDS initiatives, over the next 5 years. However, it will provide treatment for not more than 20% of the total number of AIDS patients. There is also a need to develop cheaper test surrogates for clinical management of patients, and to make them available to all provincial hospitals, as well as to regional and university hospitals. Administering these therapies is complex, and patient compliance is a major challenge. If compliance and careful follow-up of patients are not achieved, we will witness a substantial increase in multidrug-resistant HIV mutants, whose further spread will exacerbate the epidemic.

Lower priced drugs will create a new demand for treatment, which in turn will overwhelm the existing health care structure. Barriers to treatment include lack of information among people living with HIV/AIDS (PLWHA) about available treatment, reluctance to be tested, provider attitudes that discourage AIDS patients from seeking treatment, low availability of drugs in some health facilities, and the absence of a well-defined package of health care benefits in the different public insurance schemes for PLWHA (World Bank, 2000). These realities underlie the urgency of integrating HIV/AIDS treatment and care into the existing public health infrastructure, as well as assessing the technical and economic feasibility of combination ARV, using cost effectiveness as a guiding principle.

LESSONS LEARNED

Not only have socioeconomic and cultural forces shaped the direction and course of the Thai HIV epidemic, they have also influenced the national control policy and intervention. The dynamics of Thailand's HIV epidemic and the national response suggest several valuable strategic lessons. First, the nationwide epidemiological surveillance system that covers several high-risk populations is an indispensable tool

for generating public awareness of the epidemic and for mobilizing political commitment and action. Supplemented by behavioral surveillance, the system provides a clear picture of where the new infections are occurring and, therefore, where HIV prevention programs and services are most needed.

Second, Thailand has provided an exemplary model of learning from large-scale pilot projects that can rapidly expand to the national scale. For example, the feasibility and effectiveness of the pilot project of the 100% Condom Program in Ratchaburi province led to a successful national expansion. Similar strategies have been applied in piloting and expanding programs to prevent mother-to-child transmission of HIV (Kanshana et al., 2000; Thaineua et al., 1998). Additionally, counseling models and testing services developed by the Thai Red Cross Society were later adopted by the Ministry of Public Health.

Third, a nationwide program that focuses on the highest risk context, the heterosexual component, has created a profound impact on the course of the epidemic. A willingness and ability to collaborate with sex workers and their clients, using a pragmatic approach rather than a repressive strategy, was a key to the success of HIV prevention efforts.

Fourth, a strong public health infrastructure that includes an extensive nationwide network of STD clinics plays a crucial role in the success of the 100% Condom Program in providing information, free condoms, and treatment; in monitoring compliance among sex workers and clients; and in assessing the impact of the program. Ensuring compliance of the program in countries without a network of STD services and where the sex trade is not establishment-based will be more difficult (UNAIDS, 2000).

Attracted by the possibilities of working effectively in an atmosphere of political commitment and a well-established public health infrastructure, international foundations and multilateral bodies have entered into partnerships in Thailand to scale up prevention efforts. Therefore a well-established public health infrastructure is an indispensable element in building multinational networks, in galvanizing intense international collaboration, and in generating a large volume of scientific knowledge that has made the Thai national response one of the most effective.

Finally, the HIV epidemic is beyond the scope of the health sector alone, with an impact not only on individuals and families but also on the wider social structure, economy, and human security. Thus, control requires multidimensional strategies that embrace every field of social action. Within the country, government efforts were complemented by all sectors of Thai society, including NGOs, business leaders, local leaders, mass media, PLWHA, and religious institutions. NGO involvement plays a central role in ensuring nondiscrimination and respect for human rights, as well as in developing prevention and care initiatives that fully involve the target groups in program planning and delivery. This further emphasizes the important role civil society plays in combating the epidemic.

Thailand's apparent success, however, can potentially fuel complacency about the importance of and continued need for prevention. Maintaining visionary responses and an unfailing commitment to innovative strategies and progressive approaches in the fight against HIV/AIDS are therefore essential if the downward trend of HIV infections is to be sustained in Thailand.

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HIV/AIDS Epidemics in Vietnam: Evolution and Responses

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The goal of this study was to describe the evolution of the HIV epidemic in Vietnam and its responses. Surveillance was conducted in 8 provinces in 1994, expanded to 12 in 1995, 20 in 1996, and 30 in 2001. Sentinel populations were sexually transmitted disease (STD) patients, female sex workers (FSWs), injection drug users (IDUs), tuberculosis (TB) patients, antenatal women, and military conscripts. Vietnam is in the concentrated epidemic stage. HIV prevalence had increased significantly in all surveillance population groups in the 1990s. HIV prevalence in the south is higher than in other regions of the country. The national HIV prevalence increased from 10.1% in 1996 to 32% in 2002 among IDUs, from 0.6% in 1994 to 6.6% in 2002 among FSWs, from 0.4% in 1994 to 2.4% in 2002 among STD patients, from 0.03% in 1994 to 0.34% in 2002 among pregnant women, from 0% in 1994 to 0.7% in 2002 among army military recruits, and from 0.5% in 1994 to 3.6% in 2002 among TB patients. The government has a strong commitment to control the epidemic and has implemented many activities for HIV prevention and control. Vietnam's HIV epidemic is predominantly among IDUs. Current intervention activities have not been sufficient to reduce HIV transmission. Vietnam needs to strengthen responses by scaling up the best practices in the most affected population groups by implementing internationally recognised effective interventions appropriately.

The HIV epidemic is spreading into areas and countries in Asia and the Pacific, where, until recently, there was little or no HIV present—including China, Indonesia, and Vietnam. Over 1 million people in Asia and the Pacific acquired HIV in 2003, bringing the total to an estimated 7.4 million people now living with the virus. The national adult HIV prevalence is still under 1% in the majority of Asian countries. However, there are increasing warning signals that serious HIV outbreaks will occur in several countries. Most of these new emerging epidemics are driven by injection drug use, with additional HIV spread occurring through commercial sex. Three Asian countries

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have already had to contend with serious nationwide epidemics: Cambodia, Myanmar, and Thailand. Myanmar has one of the worst HIV problems in Asia. According to one controversial estimate, 3.46% of the adult population is infected with HIV. The virus is spreading largely through injection drug use and commercial sex. The national adult HIV prevalence in 2002 has remained stable at about 3% in Cambodia and about 2% in Thailand, thanks to effective promotion of condom use in commercial sex and decreased use of the services of sex workers among men. However, HIV transmission between spouses has become a more prominent cause of new infections. Thus, intervention programs must also target vulnerable groups, in addition to the usual risk groups. Injection drug use is often the main mode of transmission, with the virus then being passed on to other users, their sexual partners, and children. The potential for rapid HIV transmission to other vulnerable populations and the wider population is substantial. In older epidemics, such as those in Myanmar and Thailand, there is now significant HIV spread from people with high-risk behavior to their sexual partners (UNAIDS/World Health Organization [WHO], 2003.)

Vietnam is a nation in Southeast Asia. It is located at the east coast of the Indochina peninsula, with an area of 330,991 square kilometers and a population of about 80 million. Vietnam borders China in the north, Laos and Cambodia in the west, and the East Sea and Pacific Ocean in the east and southwest. Since the first HIV infection was reported 14 years ago, considerable effort has been expended to prevent and control the spread of HIV. Although Vietnam is in the concentrated epidemic stage, it is facing the possibility of a widespread epidemic. HIV prevalence has increased in all surveillance population groups, but HIV infection is highest among injection drug users (IDUs). Vietnam faces an urgent double challenge to prevent HIV transmission through injection drug use and through sex work into the wider heterosexual population (Socialist Republic of Vietnam, 2003). This article presents the trends and updates the picture of HIV/AIDS in Vietnam, summarizes the country's responses, and identifies lessons for the future.

METHODS

HIV/AIDS TESTING AND CASE REPORTING

HIV testing was started in Vietnam in 1988 in four large cities in Vietnam: Hanoi, Hai Phong, Da Nang, and Ho Chi Minh City. The number of provinces that can conduct HIV testing increased annually, up to 20 provinces in 1994 and to 61 provinces in 1996. Now all provinces in Vietnam are equipped for agglutination tests (such as SERODIA), and 41 provinces were also provided with ELISA equipment. The National Reference Laboratories for HIV are located at the National Institute of Hygiene and Epidemiology in Hanoi and the Pasteur Institute in Ho Chi Minh City. All health workers have been trained in laboratory techniques for HIV detection. HIV testing is mandatory for incarcerated IDUs and female sex workers (FSWs), blood donors, and prisoners; for others, testing is voluntary. Blood samples are collected in rehabilitation centers for IDUs and FSWs and in public sexually transmitted disease (STD) clinics. Others specimens are collected at voluntary testing centers or hospitals. HIV testing is conducted for different purposes, in accordance with WHO recommendations. For the purpose of HIV infection diagnosis, strategy III was used. This strategy concludes that a sample is positive if it is positive for three different screening tests (WHO, 1992). Before 2000 the WHO criteria for diagnosis of AIDS cases were used. Since 2000 the U.S. Centers for Disease Control and Prevention classification and criteria

for AIDS cases among adults and children over 13 years of age have been used. HIV cases are reported from nationally standardized HIV laboratories, and AIDS cases are reported from hospitals. AIDS divisions in provincial health departments are responsible for collecting and compiling monthly reports on the results of tests, detection, and monitoring of HIV/AIDS cases in their own provinces, according to a national report format. Data and information are then sent to regional Pasteur Institutes and Institutes of Epidemiology and Hygiene, and finally to the National Institute of Epidemiology and Hygiene and the AIDS Division of the Ministry of Health.

HIV SENTINEL SURVEILLANCE

In accordance with WHO recommendations, Vietnam set up its own sentinel surveillance system, with eight sentinel sites in the first quarter of 1994. The program was expanded to 12 provinces in 1995, 20 in 1997, and 30 in 2001.

Sentinel Population. The following sentinel populations were selected in each site: male STD patients, IDUs, FSWs, antenatal care (ANC) attendees, tuberculosis (TB) patients, and army recruits. In all provinces, most of the individuals surveyed live in urban areas.

Sampling and Sample Size. At the beginning of the program, the sample size for each sentinel population in each site was 400 for IDUs, FSWs, STD patients, and TB patients, and 800 for ANC and army recruits. The cross-sectional surveys were repeated every 6 months for IDUs, FSWs, and STD patients, and every year for ANC, army conscripts, and TB patients. Since 1997 the sample collection period changed from twice a year to once, and it is carried out during the 4-month period between May and August. This change may help to avoid duplicate sampling of the same person and to adapt to the local situations, in which significant changes do not occur so rapidly as to require surveys twice a year.

Sentinel Sites. For each sentinel population in each sentinel province, one or two of the largest suitable sentinel sites are selected. These include hospitals or STD clinics, centers for drug rehabilitation for IDUs, rehabilitation centers or karaoke bars/massage parlors for FSWs, TB clinics or centers, obstetric care hospitals/departments and family planning centers for pregnant women, and centers for military recruits.

Method of Sample Collection. Unlinked anonymous methods were recommended in order to minimize participation bias. Information about personal identity is also collected. HIV testing results are kept confidential, and counseling, management, and care are provided.

HIV Testing Strategy for Surveillance. WHO recommendations for an HIV testing strategy were followed. For the purpose of surveillance, strategy II was used. This strategy implies that a sample is considered positive if it is positive for two different screening tests.

Data Analysis. The results of testing are stratified by sentinel populations and by provinces. The available data are critically reviewed. Provinces selected for field visits include (a) those provinces with inconsistent data or epidemiologically unrealistic trends, (b) sample of provinces in all three geographic regions of the country (north, central, and south), and (c) a mix of both sentinel and nonsentinel provinces. During the visits, the team sought other sources of data in the provinces; examined possible sources of bias in the data; explored the issues affecting data quality; and considered problems of staffing, training, and protocol implementation. Outliers (data points that were inconsistent with other data from the same population) and data with a sample size of less than 30 were removed from data analysis. Data for sex workers in

the rehabilitation centers were used, because community samples were often biased downward and often did not actually recruit sex workers for testing. Aggregated rates (95% confident interval) were used for prevalence. Trends of HIV prevalence were subjected to chi-square testing for the linear trends of proportions, using EPI-INFO.

ESTIMATION AND PROJECTION

The last estimation and projection process in Vietnam was conducted by the AIDS Division, Ministry of Health, in collaboration with WHO in 2000, using data available through the end of 1999. These data included sentinel surveillance data from 20 provinces; reported HIV infections and AIDS cases; and estimates of the size of the general population and of the key at-risk populations, namely IDUs, FSWs, and STD patients. This process provided a point prevalence estimate for 1999, and applied the EPIMODEL program developed in the mid-1980s by the WHO to make projections on a national basis.

ESTIMATION OF HIV SEROPREVALENCE RATES

- For provinces with reasonably good HIV testing and reporting systems, the HIV seroprevalence rates were used directly, with the condition that the sample size of each population group exceeded 50.
- For provinces that had not yet conducted sentinel surveillance, had no information about HIV prevalence rates, or had tested less than 50 for each estimation group, the mean of HIV prevalence rates for provinces in that ecological region were used (once again including only those sentinel sites and nonsentinel sites with sample sizes of more than 50).

ESTIMATION OF POPULATION SIZES

High and low estimates for the size of the general population and each at-risk population were made in each province, then summed to obtain the overall population for the country.

- The lowest number of IDUs was calculated by multiplying the reported number of drug users by the proportion injecting, which data were obtained from a Ministry of Labor, Invalid and Social Affairs (MOLISA) study done in 1998 (Ministry of Labor, Invalid and Social Affairs, 1999).
- The highest number of IDUs was estimated by using the estimated number of drug users from MOLISA.
- The lowest number of FSWs was calculated as the higher of the number reported by MOLISA and the number estimated by the provinces.
- The highest number of FSWs was taken to be the MOLISA value.
- The lowest number of STD patients was estimated by using the reported number, based on the official reported data of the National Institute of Dermatology and Venereology.
- The highest number of STD patients was calculated by multiplying the reported number by 7, based on the opinions of STD experts that only 15% of STD patients went to public STD clinics for treatment.

Data on the population aged 15-49 years in all provinces in 1999 were provided by the General Statistics Department.

ESTIMATION OF THE NUMBER OF HIV INFECTIONS

In each province, HIV infections were estimated for each population. These values were then summed for each province, and the provinces summed to yield the national estimate. In detail, the calculation was as follows for each group:

- Number of HIV infections in each high-risk group (IDUs, FSWs, STD patients) = estimated seroprevalence rate \times estimated population size
- Number of HIV-infected males = (estimated number of males aged 15-49 years \times seroprevalence among antenatal women) + estimated number of infected IDUs + 22%* of HIV-infected STD patients
- Number of HIV-infected females = (estimated number of females aged 15-49 years \times seroprevalence among antenatal women) + number of HIV-infected FSWs + 78%* of HIV-infected STD patients
- Number of HIV-infected infants = number of infected females aged 15-49 years \times birth rate (1.8%) \times assumed prenatal transmission rate (30%)

PROJECTION OF HIV/AIDS

These estimates were then placed into the EPIMODEL program to make projections. HIV infection was projected separately among the heterosexual population based on the high and low scenarios for HIV estimates in 1999 and among the population of IDUs for the entire country. The specific input parameters used in running EPIMODEL were:

- For the heterosexual population, a 1993 start year with low and high estimates for 1999 of 91,000 and 117,000 HIV infections, respectively. Transmission was assumed to continue after 1999, and the position and gamma parameters in EPIMODEL were set to 242 and 5. Annual HIV growth was set at 1%, assuming prevalence would become stable in 2006. An annual overall population growth rate of 1.8% was assumed.
- For the IDU population, a 1989 start year with low and high estimates for 1999 of 16,000 and 24,000 HIV infections, respectively. Transmission was assumed to continue after 1999, and the position and gamma parameters in EPIMODEL were set to 280 and 5. Annual HIV growth was set at 6%, reaching 40% in 2005.

In both cases above, mean progression from HIV to AIDS was taken to be 10 years.

RESULTS

HIV/AIDS REPORTED CASES

After the first case of HIV infection was reported in December 1990 in Ho Chi Minh City, no HIV infections were reported in 1991, and only 11 were reported 1992. In 1993, there was an outbreak of HIV infection among IDUs in the central and southern regions of Vietnam, especially in Nha Trang and Ho Chi Minh City. The number of HIV infections reported has been increasing significantly each year. In the subsequent years, about 1,500 HIV cases were reported annually. By the end of December 2003 all 61 provinces in Vietnam had reported a total of 76,180 HIV-positive cases cumulatively. Of these, 50.8% were IDUs, followed by FSWs (1.3%) and STD patients (1%). In 2003 alone, there were 16,980 newly detected infections, 2,866 newly diagnosed AIDS cases, and 1,061 AIDS-related deaths reported nationwide. Ten

*The gender distribution of HIV-infected STD patients was based on the gender distribution of reported STD patients (22% of reported patients were male and 78% were female)

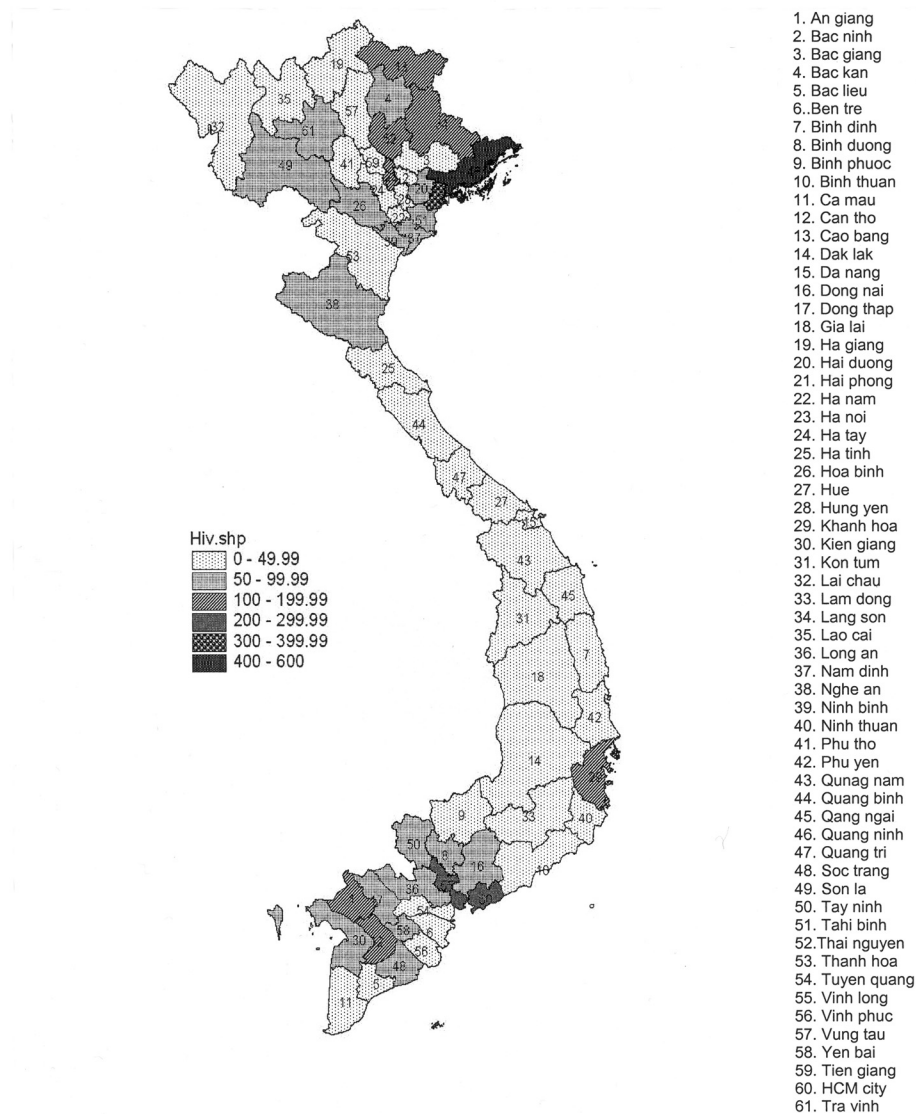


FIGURE 1. Rate of reported HIV cases per 100,000 population by provinces in the year 2003.

provinces/cities were reported to have high HIV prevalence rates: Quang Ninh, Hai Phong, Ho Chi Minh City, Ba Ria-Vung Tau, Ha Noi, An Giang, Lang Son, Cao Bang, Khanh Hoa, and Thai Nguyen (Figure 1). HIV infection has so far been reported mainly among males, who account for 84.6% of all reported cases. Gender distribution among HIV reported cases has not changed significantly in the last 10 years. The proportion of males fluctuates from 79% to 85%. HIV infection is mainly occurring in young adults from 20 to 39 years old, accounting for 82.5%. There is an increasing trend of young people under 30 years in reported HIV cases over the last 7 years, from

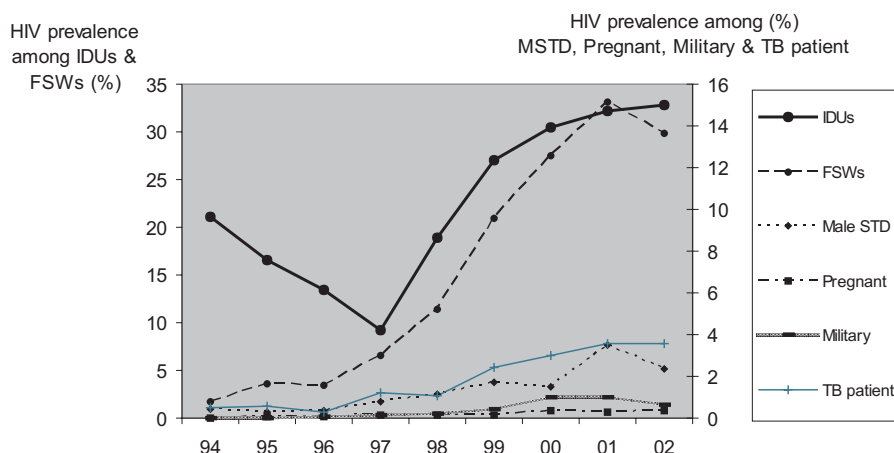


FIGURE 2. Trends of HIV prevalence (%) among sentinel populations by years.

Note. IDUs = injection drug users; FSWs = female sex workers; MSTD = male STD patients; TB = tuberculosis.

21.9% in 1995 to 70% in 2002. New HIV infection cases among children under 5 years of age have also increased. By the end of December 2003, more than 400 cases were cumulatively reported. By the end of 2003, a total 11,659 AIDS cases and 6,635 AIDS-related deaths were reported. Of these, 74.6% AIDS cases were 20 to 39 years old. The male-to-female ratio of AIDS cases from 2000 to 2003 was 5 to 1 (AIDS Division, Ministry of Health, 2003). Recent studies in Hanoi indicate that up to 12% of sex workers in Hanoi were infected (Tran, Detels, Long, Lan, & Phung, 2004). Reports of HIV infections, AIDS cases, and AIDS-related deaths are useful for increasing public awareness of the epidemic early in its development. However, these data have limitations, especially because of the problem of underreporting.

HIV PREVALENCE RATES AND TRENDS IN VIETNAM

The results of HIV sentinel surveillance in 30 provinces in Vietnam indicate that the HIV epidemic in Vietnam is in the concentrated stage (HIV prevalence rate over 5% among high-risk populations and less than 1% among pregnant women). However, the HIV prevalence is increasing significantly in all surveillance population groups. In general, the HIV prevalence in the south is higher than in other regions of the country. HIV infection occurs primarily among IDUs (Figure 2). The HIV prevalence rate among IDUs increased from 10.1% in 1996 to 32% in 2002. Since 1997 HIV prevalence rates among IDUs in most of the provinces in the south have increased more rapidly than those in the north and the central regions. The provinces with HIV prevalence among IDUs greater than 40% in 2002 were Hai Duong, Hai Phong, Quang Ninh, Khanh Hoa, Lam Dong, Binh Duong, Can Tho, Dong Nai, Ho Chi Minh City, and Vung Tau (Table 1). The HIV prevalence rate among FSWs increased from 0.6% in 1994 to 6.6% in 2002. The provinces with HIV prevalence among FSWs greater than 20% in 2002 were Hai Phong, Can Tho, Ho Chi Minh City, and An Giang (Table 2). HIV prevalence rates among STD patients were lower but also in-

creased from 0.4% in 1994 to 2.4% in 2002. HIV prevalence among pregnant women increased from 0.03% in 1994 to 0.34% in 2002. HIV prevalence among army conscripts/military candidates also increased from 0% in 1994 to 0.7% in 2002 (Table 3). These data are similar to the results of HIV blood donor screening. In the year 2003, a total of 142,062 blood donors were screened for HIV in blood transfusion centers, revealing an HIV prevalence of 0.41%. The HIV prevalence among TB patients increased from 0.5% in 1994 to 3.6% in 2002.

ESTIMATION AND PROJECTION

By the end of 1999, the cumulative estimate of HIV infections in Vietnam was estimated to be between 91,000 and 117,000. It was projected that by the year 2000, the cumulative number of HIV infections would grow to between 118,000 and 152,000, that between 11,600 and 14,600 would develop AIDS, and that 9,500 to 12,000 would die as a result of AIDS. By the year 2005, it was projected that the cumulative number of HIV infections would reach between 198,000 and 256,000, that 52,000 to 66,000 would develop AIDS, and that between 47,000 and 60,000 would die as a result of AIDS (Vietnam Ministry of Health, 2001).

PREVENTION EFFORTS

Being aware of the challenge of HIV/AIDS, the government of Vietnam has made important decisions to mobilize every organization and individual throughout the country, from the central to the grassroots level to actively participate in HIV/AIDS prevention and control. These included Directive No. 52/TW by the Central Committee of the Party, the Ordinance on HIV/AIDS by the Standing Committee of the National Assembly, and Resolution No. 20/CP and Decree No. 34/CP by the government. The government's policies are to propagandize and mobilize the entire society, using a multisectoral approach, based on family and community values, adherence to national traditions of morality, healthy lifestyles, and faithful loving. In early 2003, the prime minister issued Directive No. 02-2003/CT-TTg on strengthening the organization of and intensifying HIV/AIDS prevention activities throughout the country. This directive has set the guidelines for each ministry in the government, assigning specific functions and responsibilities to improve the effectiveness of HIV/AIDS prevention activities. The government's budget allocation for HIV/AIDS prevention and care has increased each year, from less than U.S.\$50,000 in 1992 to more than U.S.\$4 million in 2002 (this amount excludes resources mobilized from ministries, local authorities and community). Government funds were allocated for the following three categories: 2.5% for STD control activities, 90.9% for HIV prevention, and 6.6% for HIV/AIDS care and treatment. The scope and magnitude of the activities differ from time to time and by sectors. However, such activities are available in all sectors, and include information-education-communication (IEC), life skills education for young people, harm reduction interventions among HIV/AIDS vulnerable populations (peer education, needle and syringe distribution, and condom promotion), sentinel and behavioral surveillance surveys, blood safety and safe medical services, care and support for people living with HIV/AIDS (PLWAs), STD treatment, prevention of mother-to-child transmission of HIV, voluntary counseling and testing, and self-help groups for persons living with AIDS. The following figures demonstrate the achievements of the prevention and care activities in the year 2002: 100% of schoolteachers were trained on HIV/AIDS; 2.4% of estimated HIV-infected pregnant women (25.4% of reported HIV-infected pregnant women) received ARV prophylaxis to reduce the risk of mother-to-child transmission, and 1.1% of reported persons

TABLE 1. HIV Prevalence % (n) among Injection Drug Users (IDUs) by Years and Regions

Regions	1994	1995	1996	1997	1998	1999	2000	2001	2002	p
North										
95% CI	0.09 (1081)	0.14 (1406)	0.92 (1518)	4.78 (3683)	16.81 (4729)	24.57 (4204)	23.60 (3865)	29.15 (4745)	30.28 (5199)	< .001
	0.00 – 0.27	0.00 – 0.34	0.44 – 1.40	4.09 – 5.47	15.75 – 17.88	23.27 – 25.87	22.26 – 24.94	27.85 – 30.44	29.03 – 31.52	
Hai duong								56.25 (400)	61.25 (400)	
Hai phong	0.00 (200)	0.00 (200)	0.00 (160)	1.35 (223)	32.82 (326)	49.78 (452)	78.53 (340)	72.25 (400)	59.37 (411)	
Hanoi	0.11 (881)	0.66 (301)	0.56 (538)	2.39 (419)	3.25 (400)	13.25 (400)	17.50 (400)	22.25 (400)	25.25 (400)	
Ha tay								11.52 (625)	13.26 (822)	
Lao cai				0.00 (581)	0.00 (615)	0.99 (909)	2.63 (457)	2.60 (385)	6.11 (540)	
Nam dinh		0.00 (450)	3.29 (304)	12.42 (620)	0.46 (655)	0.46 (435)	13.69 (621)	25.00 (540)	20.07 (563)	
Nghe an								20.06 (314)	14.75 (400)	
Phu tho								15.50 (400)	20.00 (360)	
Quang ninh			0.73 (137)	0.00 (363)	65.86 (914)	72.86 (899)	49.57 (466)	60.47 (301)	75.24 (420)	
Thai nguyen				12.27 (701)	6.71 (641)	7.97 (464)	9.70 (464)	27.49 (422)	28.40 (412)	
Thanh hoa		0.00 (455)	0.00 (379)	0.00 (776)	2.29 (1178)	8.06 (645)	18.08 (1117)	25.09 (558)	35.03 (471)	
Central										
95% CI	27.52 (327)	13.91 (338)	24.12 (456)	31.50 (854)	35.31 (1470)	33.56 (1463)	23.90 (1117)	19.81 (1827)	27.94 (1793)	< .001
	22.68 – 32.36	10.22 – 17.59	20.20 – 28.05	28.38 – 34.61	32.86 – 37.75	31.14 – 35.98	21.40 – 26.40	17.99 – 21.64	25.87 – 30.02	
Binh dinh			23.33 (60)	56.71 (231)	66.15 (325)	74.56 (228)	70.37 (54)			
Dak lak			24.08 (191)	25.00 (188)	45.63 (206)	41.04 (251)	21.43 (224)	26.39 (379)	24.03 (154)	
Da nang*	23.64 (220)	14.18 (141)	38.46 (65)	68.60 (121)	80.00 (155)	51.19 (168)	37.50 (160)	10.65 (432)	11.00 (400)	
Gia lai			30.36 (56)	21.88 (64)	11.81 (127)			20.93 (43)		
Ha tinh					5.24 (439)	12.73 (589)	23.91 (481)	12.45 (546)	15.41 (532)	
Hue	5.58 (215)	1.43 (280)	0.00 (84)	0.77 (260)	1.16 (173)	0.51 (197)	1.89 (106)	0.00 (400)	15.00 (400)	
Khanh hoa	69.64 (112)	74.14 (58)	50.77 (65)	67.57 (111)	85.00 (200)	71.72 (198)	25.40 (252)	29.18 (305)	42.41 (257)	
Lam dong								53.30 (197)	50.12 (407)	
South										
95% CI	29.63 (2,400)	28.13 (2,090)	18.39 (2,860)	8.14 (2,431)	14.48 (3,059)	27.09 (4,120)	37.98 (4,452)	39.68 (4,869)	39.16 (3,440)	< .001
	27.80 – 31.45	26.21 – 30.06	16.97 – 19.81	7.06 – 9.23	13.23 – 15.73	25.73 – 28.44	36.56 – 39.41	38.31 – 41.05	37.53 – 40.79	
An giang	1.84 (326)	0.34 (295)	4.66 (665)	5.13 (526)	16.28 (516)	12.91 (573)	9.89 (556)	33.33 (429)	30.00 (400)	
Binh duong			5.87 (545)	3.93 (535)	6.50 (400)	3.75 (400)	10.50 (600)	41.75 (400)	40.50 (400)	
Binh thuan								15.23 (1077)	19.47 (380)	
Can tho		1.50 (133)	1.41 (213)	1.69 (236)	2.57 (350)	8.02 (324)	21.34 (328)	41.51 (424)	52.75 (400)	
Dong nai			28.75 (800)	22.73 (308)	23.60 (339)	18.71 (294)	20.14 (417)	41.14 (756)	42.53 (435)	
Kien giang		8.75 (400)	5.00 (200)	13.56 (376)	13.57 (420)	21.00 (400)	15.25 (400)	23.50 (400)	19.50 (400)	
Soc trang								23.35 (227)	23.35 (227)	
HCM city	33.99 (2,074)	43.58 (1,262)	36.91 (1,157)		18.62 (639)	39.78 (1,727)	65.05 (1,751)	81.08 (756)	73.62 (3,98)	
Vung tau				5.56 (450)	17.22 (395)	43.53 (402)	54.75 (400)	52.75 (400)	42.75 (400)	
Total										
95% CI	21.06 (3,803)	16.61 (3,834)	13.45 (4,834)	9.23 (6,968)	18.98 (9,258)	26.97 (9,787)	30.42 (9,434)	32.14 (1,1441)	32.80 (1,0432)	< .001
	19.77 – 22.36	15.44 – 17.79	12.48 – 14.41	8.55 – 9.91	18.18 – 19.78	26.10 – 27.85	29.49 – 31.35	31.28 – 32.99	31.90 – 33.70	

*Not included in the analysis because of the unstable IDU population by time.

TABLE 2. HIV Prevalence % (*n*) among FSWs by Years and Regions

Regions	1994	1995	1996	1997	1998	1999	2000	2001	2002	<i>p</i>
North										
95% CI	0.00 (787)	0.00 (499)	0.09 (1,067)	0.54 (555)	4.95 (767)	7.80 (731)	7.86 (802)	8.31 (963)	7.83 (1,149)	< .001
			0.00 – 0.28	0.00 – 1.15	3.42 – 6.49	5.85 – 9.74	5.99 – 9.72	6.56 – 10.05	6.28 – 9.39	
Hai phong			0.00 (32)		16.92 (130)	23.66 (131)	20.00 (100)	21.54 (130)	29.03 (31)	
Ha noi	0.00 (787)	0.00 (469)	0.10 (1035)	0.84 (357)	3.75 (400)	6.50 (400)	10.00 (400)	11.50 (400)	14.50 (400)	
Ha tay								4.27 (117)	2.76 (217)	
Phu tho								3.33 (30)	7.35 (68)	
Quang ninh							1.96 (102)	0.00 (155)	3.59 (223)	
Thai nguyen						0.00 (200)	0.00 (168)	0.00 (131)	1.15 (174)	
Thanh hoa		0.00 (30)			0.00 (30)		3.13 (32)		5.56 (36)	
Central										
95% CI			0.54 (369)	1.33 (527)	1.55 (581)	1.14 (528)	0.96 (625)	1.69 (473)	2.07 (387)	> .05
			0.00 – 1.29	0.35 – 2.31	0.54 – 2.55	0.23 – 2.04	0.20 – 1.72	0.53 – 2.85	0.65 – 3.48	
Binh dinh			1.01 (99)	1.20 (333)	2.10 (381)	1.83 (328)	2.58 (233)	2.58 (233)	2.58 (233)	
Dak lak			1.43 (70)	1.83 (164)				5.00 (40)	4.17 (48)	
Da nang			0.00 (200)	0.00 (30)	0.50 (200)	0.00 (200)	0.00 (200)	0.00 (200)	0.00 (106)	
Hue							0.00 (192)			
South										
95% CI	1.05 (2,198)	1.99 (2,266)	2.36 (2,540)	4.08 (2,183)	6.35 (1,969)	12.10 (2,289)	16.49 (2,808)	19.23 (3,166)	17.92 (2,629)	< .001
	0.62 – 1.47	1.41 – 2.56	1.77 – 2.95	3.25 – 4.91	5.27 – 7.43	10.77 – 13.44	15.12 – 17.86	17.86 – 20.61	16.45 – 19.38	
An giang	2.75 (400)	3.82 (288)	4.09 (660)	3.71 (512)	14.66 (532)	12.54 (590)	15.03 (527)	17.51 (463)	20.00 (400)	
Binh duong			3.62 (138)	2.96 (203)	2.00 (300)	2.26 (310)	6.75 (400)	16.00 (250)	13.64 (176)	
Binh phuoc	2.00 (50)	8.70 (46)	5.00 (60)			49.33 (75)	45.71 (70)	34.15 (82)	2.56 (39)	
Binh thuan								5.56 (72)		
Ca mau								2.56 (78)	2.54 (118)	
Can tho		3.24 (216)	2.75 (291)	3.91 (179)	10.00 (210)	8.97 (156)	8.33 (72)	15.26 (190)	23.08 (169)	
Dong nai				1.56 (256)		11.48 (61)		6.93 (101)		
Kien giang		2.00 (200)		15.00 (200)	1.50 (200)	4.00 (200)	1.00 (200)	4.00 (200)	0.90 (222)	
Soc trang								12.82 (78)	4.55 (154)	
HCM city	0.63 (1,748)	1.25 (1,516)	1.22 (1,391)	2.76 (833)	2.34 (727)	14.49 (897)	20.79 (1,539)	23.61 (1,724)	24.32 (1,279)	
Total	0.77 (2,985)	1.63 (2,765)	1.58 (3,976)	3.03 (3,265)	5.19 (3,317)	9.58 (3,548)	12.56 (4,235)	15.14 (4,602)	13.66 (4,165)	< .001
95% CI	0.46 – 1.08	1.16 – 2.10	1.20 – 1.97	2.44 – 3.62	4.43 – 5.94	8.61 – 10.55	11.56 – 13.56	14.11 – 16.18	12.62 – 14.70	

TABLE 3. HIV Prevalence % (*n*) among Male Sexually Transmitted Disease Patients, Pregnant Women, Military Recruits, and Tuberculosis Patients by Years and Regions

Sentinel population	1994	1995	1996	1997	1998	1999	2000	2001	2002	<i>p</i>
STD patients										
North	0.00 (1,150)	0.00 (1,269)	0.03 (3,076)	0.72 (3,900)	1.07 (2,516)	1.50 (2,398)	2.33 (1,718)	3.75 (2,428)	2.57 (2,875)	< .001
95% CI			0.00 – 0.10	0.45 – 0.98	0.67 – 1.48	1.01 – 1.99	1.62 – 3.04	2.99 – 4.50	2.00 – 3.15	
Central	0.27 (1,498)	0.19 (1,603)	0.25 (1,619)	0.00 (1,748)	0.28 (1,795)	0.59 (1,520)	0.80 (1,235)	1.11 (1,353)	1.33 (1,678)	< .001
95% CI	0.01 – 0.53	0.00 – 0.40	0.01 – 0.49		0.03 – 0.52	0.21 – 0.98	0.00 – 1.71	0.55 – 1.67	0.04 – 2.63	
South	0.67 (2,543)	0.50 (1,810)	0.74 (3,364)	1.56 (2,441)	1.75 (2,922)	2.57 (2,846)	1.73 (1,158)	4.80 (2,043)	3.68 (1,683)	< .001
95% CI	0.35 – 0.99	0.17 – 0.82	0.45 – 1.03	1.07 – 2.05	1.27 – 2.22	1.98 – 3.15	0.98 – 2.48	3.87 – 5.72	2.78 – 4.58	
Total	0.40 (5,191)	0.26 (4,682)	0.37 (8,059)	0.82 (8,089)	1.15 (7,233)	1.74 (6,764)	1.52 (4,111)	3.50 (5,824)	2.37 (6,236)	< .001
95% CI	0.23 – 0.58	0.11 – 0.40	0.24 – 0.51	0.62 – 1.01	0.90 – 1.39	1.43 – 2.06	1.16 – 1.91	3.03 – 3.97	2.00 – 2.75	
Pregnant women										
North	0.00 (2,000)	0.00 (3,628)	0.00 (6,442)	0.04 (5,113)	0.11 (6,346)	0.18 (6,155)	0.52 (8,278)	0.35 (10,143)	0.47 (10,170)	< .001
95% CI				0.00 – 0.09	0.03 – 0.19	0.07 – 0.28	0.36 – 0.67	0.24 – 0.47	0.34 – 0.61	
Central	0.00 (2,091)	0.00 (2,232)	0.00 (4,723)	0.00 (4,259)	0.02 (4,600)	0.07 (4,585)	0.04 (4,944)	0.09 (5,478)	0.13 (6,037)	< .05
95% CI					0.00 – 0.06	0.00 – 0.14	0.00 – 0.10	0.01 – 0.17	0.04 – 0.22	
South	0.06 (3,108)	0.16 (5,619)	0.12 (5,135)	0.25 (7,587)	0.19 (7,526)	0.22 (8,128)	0.35 (7,638)	0.33 (15,268)	0.33 (13,803)	< .001
95% CI	0.00 – 0.15	0.06 – 0.26	0.02 – 0.21	0.14 – 0.36	0.09 – 0.28	0.12 – 0.32	0.22 – 0.49	0.24 – 0.42	0.24 – 0.43	
Total	0.03 (7,199)	0.08 (11,479)	0.04 (16,300)	0.12 (16,959)	0.12 (18,472)	0.17 (18,868)	0.35 (20,860)	0.29 (30,889)	0.34 (30,010)	< .001
95% CI	0.00 – 0.07	0.03 – 0.13	0.01 – 0.07	0.07 – 0.18	0.07 – 0.17	0.11 – 0.23	0.27 – 0.42	0.23 – 0.36	0.27 – 0.41	
Military recruits										
North	0.00 (400)	0.00 (1,200)	0.00 (1,558)	0.43 (3,682)	0.50 (6,020)	0.79 (4,686)	1.21 (7,604)	1.39 (9,917)	0.65 (10,828)	< .01
95% CI				0.22 – 0.65	0.32 – 0.68	0.54 – 1.04	0.96 – 1.46	1.16 – 1.62	0.50 – 0.80	
Central	0.00 (1,698)	0.00 (1,376)	0.00 (5,779)	0.00 (5,234)	0.02 (5,160)	0.04 (4,527)	0.10 (4,835)	0.06 (6,658)	0.12 (7,362)	< .05
95% CI					0.00 – 0.06	0.00 – 0.11	0.01 – 0.19	0.00 – 0.12	0.04 – 0.20	
South		0.05 (1,882)	0.10 (4,892)	0.10 (7,051)	0.12 (6,077)	0.44 (5,506)	1.49 (5,984)	1.18 (9,340)	1.11 (9,190)	< .001
95% CI		0.00 – 0.16	0.01 – 0.19	0.03 – 0.17	0.03 – 0.20	0.26 – 0.61	1.18 – 1.79	0.96 – 1.40	0.90 – 1.32	
Total	0.00 (2,098)	0.02 (4,458)	0.04 (12,229)	0.14 (15,967)	0.22 (17,257)	0.43 (14,719)	1.01 (18,423)	0.97 (25,915)	0.66 (27,380)	< .001
95% CI		0.00 – 0.07	0.01 – 0.08	0.09 – 0.20	0.15 – 0.29	0.32 – 0.53	0.87 – 1.15	0.85 – 1.09	0.57 – 0.76	
TB patients										
North	0.00 (647)	0.00 (1,114)	0.07 (2,843)	0.38 (2,891)	0.81 (2,704)	3.42 (3,129)	5.54 (2,617)	3.03 (4,000)	4.60 (4,981)	< .001
95% CI			0.00 – 0.17	0.16 – 0.60	0.48 – 1.15	2.78 – 4.06	4.66 – 6.42	2.49 – 3.56	4.02 – 5.18	
Central	0.37 (807)	0.80 (1,372)	0.51 (2,722)	0.52 (3,665)	0.43 (2,320)	0.90 (2,332)	0.90 (2,330)	0.53 (2,469)	0.87 (2,746)	> .05
95% CI	0.00 – 0.79	0.33 – 1.27	0.25 – 0.78	0.29 – 0.75	0.16 – 0.70	0.52 – 1.28	0.52 – 1.29	0.24 – 0.81	0.53 – 1.22	
South	0.73 (2,341)	0.74 (2,283)	0.40 (1,991)	2.11 (5,162)	1.86 (3,120)	2.50 (3,285)	2.47 (3,201)	6.53 (3,262)	4.39 (3,141)	< .001
95% CI	0.38 – 1.07	0.39 – 1.10	0.12 – 0.68	1.72 – 2.50	1.39 – 2.33	1.96 – 3.03	1.93 – 3.01	5.68 – 7.38	3.68 – 5.11	
Total	0.53 (3,795)	0.59 (4,769)	0.32 (7,556)	1.19 (11,718)	1.11 (8,144)	2.40 (8,746)	3.01 (8,148)	3.57 (9,731)	3.60 (10,868)	< .001
95% CI	0.30 – 0.76	0.37 – 0.80	0.19 – 0.44	0.99 – 1.38	0.88 – 1.33	2.08 – 2.72	2.64 – 3.38	3.20 – 3.93	3.25 – 3.95	

with advanced HIV infection received ARV therapy from the government budget. HIV/AIDS preventive services are estimated to cover 62.3% of the IDUs in the entire country (Socialist Republic of Vietnam, 2003). In the year 2003, for example, 148,613 STD cases were diagnosed and treated, 247 children born to HIV-infected mothers had received nevirapine for prevention of transmission from mother to child, about 480,000 people received HIV counseling, and 45,000 HIV-infected people received care and support (Vietnam Ministry of Health Report, 2004). On the international side, the United Nations, bilateral agencies, international nongovernmental organizations and foundations, and others increased their support for HIV/AIDS activities in Vietnam. Current developments include awarding of grants from the Global Fund for AIDS, TB and Malaria; the WHO "3 × 5" initiative to increase the access of PLWAs to treatment; and increased funding from the United Kingdom, United States, Norway, Australia, and Canada (Community of Concerned Partners, 2003). By the end of 2003, the National HIV/AIDS Strategy for 2004-2010 and Vision for 2020 had been developed. It involves three groups of solutions. First, the social solutions include strengthening the leadership of the Communist Party and government authorities at all levels, multisectoral collaboration and community involvement, identifying legal and policy issues in HIV/AIDS prevention and control, behavioral change communication, harm reduction, care and support for PLWAs, and reduction of the social and economic impact of HIV/AIDS. The technical solutions are HIV/AIDS surveillance and voluntary testing, blood transfusion safety, prevention of HIV transmission through health and social services, treatment of AIDS cases, prevention of mother-to-child HIV transmission, STD care and treatment, and monitoring and evaluation of HIV/AIDS. The third group of solutions includes resource mobilization and international collaboration. This strategy is designed to ensure and intensify the participation and multisectoral coordination in HIV/AIDS prevention (Social Republic of Vietnam, 2003).

DISCUSSION

Vietnam's HIV epidemic is predominantly among IDUs, in whom the prevalence continues to increase in many provinces, even after more than 10 years' implementation of HIV/AIDS prevention and control efforts in Vietnam. As in many countries in Asia, the explosive HIV epidemic in Vietnam appears to be a consequence of the social context: new drugs appearing, new trafficking routes, a mobile population, poverty, a move from smoking opium to injecting heroin, and new and young injectors with risky drug use practices (Crofts, Reid, & Deany, 1998a). Parallel with these socioeconomic developments, Vietnam also faces many challenging problems caused by internal migration increasing differentiation between rich and poor and rural and urban areas, resulting in increases in drug abuse and commercial sex. In the last 5 years, increased trafficking of heroin, indicated by increased seizures of heroin, is taking place in Vietnam, despite harsh punishment for traffickers who are caught. Nationwide, 115,900 drug users and 50,800 FSWs were recorded by the end of 2002 (Ministry of Labor, Invalid and Social Affairs, 2003). Some studies show that IDUs now are much younger than those in the past, with a mean age of less than 25 years (Hien et al., 2004; Nguyen, Hoang, Pham, & Detels, 2001). They tend to be more drug dependent and more likely to share injecting equipment. The study in Quang Ninh also shows that the interval from smoking to injecting heroin is only about 7 months on average. This suggests that the time window for prevention is small if it is to focus on noninjection drug users. In interviews and discussions, IDUs reported that after smoking for a cer-

tain period of time, their money ran out and they could not afford smoking, which is more expensive, so they went on to injecting, which has a stronger effect with smaller amounts and less cost.

Very high risk injecting behavior among IDUs in the past and at present may explain why the HIV prevalence among IDUs in many provinces in Vietnam has been growing rapidly. Sharing of injecting equipment is embedded in the social context in which drug use takes place. Efforts to control HIV/AIDS in Vietnam are closely linked to the government's program to combat "social evils." The police and Ministry of Social Evils campaigns against sex work and drug use make recruitment of IDUs for surveillance purposes and targeting intervention programs for these hard-to-reach groups even more difficult. These repressive policies drive these subpopulations to more marginalized situations. The pressure to inject quickly before attracting the attention of the police means that drug users pay less attention to the preparation and cleaning of injecting equipment, making the sharing of injection equipment and drugs more likely to occur, especially for the young IDUs who have more recently started to use drugs. This need also facilitates the quicker switch from smoking to injecting. The same pressure also makes it difficult to reach IDUs for interventions against drugs or HIV. Many IDUs are afraid to carry needles and syringes because they will be stopped by police, who will use this possession as evidence of drug use. IDUs often inject on the street, where the environment is not conducive to safe use, and injecting equipment is not sterile. The results of the behavioral surveillance surveys supported by Family Health International (FHI) in five provinces selected from HSS provinces (Hanoi, Hai Phong, Da Nang, Ho Chi Minh City, and Can Tho) in 2000 showed that the rate of sharing needles among IDUs ranged from 7.6% in Can Tho to 44.3% in Ho Chi Minh City. The proportion of FSWs who reported using drugs ranged from 9.3% in Ho Chi Minh City to 17.3% in Ha Noi among establishment-based sex workers, and from 20% in Ho Chi Minh City to 43% in Ha Noi among street-walking sex workers. Consistent condom use among IDUs in the last 12 months with FSWs was less than 50%, and even lower with regular partners (USAID/FHI/Impact/NASB, 2001). A study in Hanoi indicated that heroin injection was the main risk factor for HIV infection among FSWs (Hien et al., 2004). These injecting FSWs and their clients can thus act as a bridge to transmit HIV to the general population. In some countries in Asia, such as India (Manipur), HIV epidemics among IDUs subsequently spread to their noninjection sexual partners and then to the population at large through the sexual route (Panda et al., 2000; Sarkar et al., 1993). The potential for HIV transmission from this population to others becomes more serious when FSWs also inject drugs. Commonly, the girls first engage in entertainment services and are exposed to drug use through friends who are using drugs. When they become addicted, they need money for drugs, and become more actively involved in selling sex. They may become HIV-infected through sharing equipment with their nonpaying regular partners or clients, or their colleagues who inject drugs. The risk from unprotected sex with noninjection partners and intimate partners is amplified. Once the HIV epidemic is established among FSWs, it may spread quickly to their clients, who come from different social groups. Therefore HIV prevention and interventions targeting IDUs must also not underestimate the role of sexual transmission in the spread of infection among drug users.

The increased HIV prevalence rate among TB patients calls for a commitment to preventing both TB and HIV, which will require close cooperation and collaboration between HIV and TB programs. The increase of HIV infections among younger people underscores the need for prevention programs to target younger populations.

These programs should provide appropriate information and skills for avoiding drug use and unsafe sex.

In a global evaluation of the HIV surveillance systems, UNAIDS/WHO rated Vietnam as one of the 51 countries that has a fully implemented system. This does not mean that the system is perfect but, rather, that the HIV surveillance system contains the necessary and appropriate elements, components, and parameters to monitor HIV infection (Walker et al., 2001). The surveillance program in Vietnam may, however, suffer from various biases. Hard-to-reach populations such as FSWs and IDUs are followed largely in rehabilitation-based locations, creating limitations on accurate information about these subpopulations as a whole. The recruitment of IDUs in the rehabilitation centers depends on the campaigns of the police. It may overestimate the HIV prevalence among IDUs, because street IDUs are more at risk of HIV infection. The IDU population is not stable; some HIV-infected persons die, some move to other places, and nonusers become users. In addition, there has been a change of the age structure of IDUs in the last few years. The IDU population is becoming younger. STD patients are sampled in STD and dermatology clinics, to which a minority of STD patients come for treatment. They are probably not representative of the STD patient population. In some provinces, it has even been difficult to obtain the required sample sizes for groups with high-risk behavior. This has required changing sentinel sites over time to achieve the necessary sample sizes. Blood samples for HIV surveillance are collected in many provinces by confidential methods, (no personal information not collected) to reduce selection bias. This may lead to a participation bias of the groups involved. Army recruits or conscripts are not representative of young adult men. For example, the parents of IDUs want them in the army so that they will get addiction treatment. Young recruits are now being screened before acceptance into the military. Therefore, HIV prevalence may be either overestimated or underestimated (Hien et al., 1999). Most of the data about HIV prevalence among pregnant women come from urban areas, which accounts for only 25% of the total population in Vietnam.

Although men who have sex with men (MSM) may be an important part of the epidemic in Ho Chi Minh City or elsewhere, there is very little information about either the size of the at-risk population of MSM or the prevalence of HIV in this population. For all of these reasons, the results of the HIV sentinel surveillance program should be interpreted carefully. However, the large number of sites probably gives a good general picture of the overall status of the HIV epidemic in Vietnam.

The following recommendations are made to improve the quality of HIV sentinel data. The sentinel provinces should follow the recommended methods strictly, paying particular attention to potential biases. Sentinel surveillance should be expanded to include MSM and pregnant women in rural areas. Data may be disseminated for advocacy, for targeting prevention efforts, for designing programs, and to encourage behavior change. A monitoring and evaluation framework needs to be established to identify effective interventions and to ensure that these are scaled up as soon as possible. Since the last estimation and projection process was conducted in 2000, several improvements in tools and data have occurred. UNAIDS has developed a new Estimation and Projection Package (EPP), which substantially increases the sophistication of the models used to better fit the types of epidemics seen in higher risk populations over that of EPIMODEL. This package can also be used to model easily at the subnational level. The available data in the country have also been increasing, with the expansion of the surveillance system to 30 and then 40 provinces. Several additional ad hoc surveys have been carried out in the intervening time, and there is additional data for

at-risk populations from behavioral surveillance. Based on these improvements, a new and more in-depth estimation and projection process is being undertaken. The new data will be launched in April 2004.

Vietnam has implemented many activities for HIV prevention and control. Unfortunately, the above evidence shows that the efforts for preventing HIV transmission in Vietnam are not enough, and that the epidemic is accelerating. Although the authorities have a strong commitment to HIV prevention and control, there is still a lack of mechanisms to collaborate with different sectors, agencies, and organizations. In addition, the low HIV prevalence among the general population and limited financial resources mean that HIV prevention has not become a priority for many policy makers and communities. The community has not yet perceived the potential for an explosive spread of HIV in the future. HIV infection is still considered a problem involving only “social evil” groups such as IDUs and FSWs, not the general population. In many provinces, priorities are given to fighting drug use and prostitution. Local authorities often think that if they can succeed in controlling drug use and commercial sex, HIV infection will not be a problem. The IEC activities and materials are mainly for general populations and do not usually target high-risk behavior groups. Counseling services remain limited to the provision of basic medical and prevention information about HIV/AIDS. HIV education has been put in the curriculum at schools, and other activities on sexual health and life skills education for young people take place, but few models are able to demonstrate ways of working more effectively with young people to facilitate and sustain behavior change. Although programs for care and treatment of PLWHA have been implemented in several provinces, using such models as “friends help friends”, there is still a lack of services to support them. Harm reduction programs are still small in scale, cover a small proportion of the target population, and face many difficulties. Most interventions have been limited to IEC activities, and there have not been appropriate policies or mechanisms to encourage peer education activities (UNAIDS Office in Vietnam, 2001). An assessment of the national peer education program for HIV prevention indicated that peer educators made an estimated 7,000 total contacts per month with high-risk persons, but many persons were likely contacted repeatedly. Coverage was limited; some provinces with high numbers of HIV/AIDS cases had few peer educators. Although most provinces targeted IDUs and many targeted FSWs, few provinces targeted sex partners of IDUs or FSWs. The services provided by peer educators were primarily distributional: delivering information either through word of mouth, pamphlets, or brochures, providing condoms, and sometimes providing clean syringes and needles. Skills-building or goal-setting interventions aimed at HIV risk reduction were rarely provided (Khoat, West, Valdiserri, & Phan, 2003). There has been some progress in changing attitudes towards PLWHA, but stigma and discrimination are still common. Thus far, anti-HIV treatment is given only to health workers exposed through occupational risks and to HIV-infected pregnant women. Pilot harm reduction programs with peer education and distribution of clean needles have not been successful. In some provinces, the programs were stopped because it was felt that they were in conflict with the aims of the anti-social evils program (UNDP/MoH/AusAIDS, 2002; Vietnam National AIDS Committee & UNAIDS Partnership, 2000).

It is urgent for Vietnam to implement timely, effective, and appropriate action to slow the epidemic. The epidemic is still in its early phase, and there are still substantial prevention opportunities, especially to prevent spread to the general population, as well as within high-risk groups such as FSWs and IDUs. Many studies have shown

that interventions are most effective in the early phase of an epidemic and that it is very difficult to reverse an established epidemic (Des Jarlais et al., 1994). The harm reduction approach has been shown to slow the HIV epidemic in many countries in the world (Crofts et al., 1998b; Des Jarlais et al., 1995; van Ameijden & Coutinho, 1998). This approach includes different components: raising awareness of the risks; making contact with target populations; providing the means to change behavior; and, in particular, getting endorsement for public health interventions from the broader society and from the targeted populations; gaining political and community support; and involving people with high-risk behavior in policy development and delivery of services. Thailand is an example of how a strong national response to HIV/AIDS contributes to substantial progress in risk reduction and HIV/STD decline. Lessons learned from Thailand indicate the need for strong political and financial commitment from the government, joint action of all sectors of the society to provide multiple simultaneous approaches for implementing extensive and intensive HIV prevention activities, willingness to alter policies and programs as knowledge of the extent of risk behavior grows, and early and pragmatic action with the support of the society, including religious leaders (Phoolcharoen, Ungchusak, Sittirai, & Brown, 1998).

With regard to the drug abuse issue, the HIV/AIDS problem needs to be considered separately, not linked to the reduction of injection drug use. Many studies have shown that large-scale risk reduction by IDUs is followed by a reduced rate of new HIV infections and stabilization of HIV seroprevalence among the local population of IDUs (Des Jarlais et al., 1995; Watters, Estilo, Clark, & Lovick, 1994). There are three common major components of a successful prevention program to reduce HIV in IDUs: early action, provision of sterile equipment, and community outreach. There is no evidence to show that shortages of injection equipment will diminish the use of injected drugs (Magura, Shapiro, Siddiqui, & Lipton, 1990; Muller, Stark, Guggenmoos, Wirth, & Bienzle, 1995). Interventions to promote consistent use of condoms in the context of the government's 100% Condom Use Program in Thailand resulted in significant increases in consistent condom use among FSWs. Improved clinical care for STDs, supported by periodic laboratory testing and behavioral interventions, can play a role in effective reduction of STDs and HIV infections among FSWs (Levine et al., 1998). Lessons from Ho Chi Minh City and from other cities in the world about how to organize community outreach interventions, such as the coffee shop-peer education model to provide condoms and sterile equipment, are examples for the best practices (Giang et al., 2000). For these interventions, a supportive environment, such as political and community support, plays a very important role. The collaboration between different agencies and institutions, especially between prevention and control programs for HIV/AIDS targeting drug users and commercial sex workers should be strengthened. A platform for discussion of priorities and to mobilize local resources in the community is needed. An extraordinary response is needed from the leadership and society. The first priority is to engage the party, National Assembly, and the government in leading and promoting the national response to the epidemic, including a truly multisectoral response. The main challenge for Vietnam will be to move from institution-based HIV surveillance to community HIV surveillance and to link HIV seroprevalence data with behavioural surveillance surveys among similar groups. In conclusion, Vietnam needs to strengthen its response through its major risk factors by scaling up the best practices in the most affected population groups, which have been internationally recognized as effective interventions. The time to act is now.

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A Review of the HIV Epidemic in India

Suniti Solomon, Anirban Chakraborty,
and Rochelle D'Souza Yephthomi

India has a population of more than 1 billion people. Although only about 0.7% of its population is infected with HIV, it has more cases than any other country in the world, with more than 4.5 million HIV-seropositive patients. The epidemic of HIV/AIDS in India is distributed between the urban and rural populations mainly in the southern and western states of the country (APAC-VHS, *Community Prevalence of Sexually Transmitted Diseases in Tamil Nadu—A Report*, 1998; Solomon, Kumarasamy, Ganesh, & Amalraj, 1998, *International Journal of Medical Research*, 85; 335-338).

India has several different epidemics in various parts of the country. The epidemic in the western and southern states is primarily heterosexual. The north-eastern states of India, being in geographical proximity to the Golden Triangle of Asia, initially experienced HIV in the injection drug user population and their sexual partners, but spread to the heterosexual population has been increasing. At present, the northern states, which are the most densely populated, appear to remain largely unaffected by the HIV epidemic.

India has mounted a broad intervention program, including the government, and international, nongovernmental, and community-based organizations. The main barriers to effective control are insufficient resources, illiteracy, and stigma.

Antiretroviral drugs are manufactured in the country and exported elsewhere, but their affordability (despite a drastic reduction in costs) and the feasibility of monitoring patients on drugs are in question. Starting April 1, 2004, the government of India has announced free provision of ART drugs to all who need it in the six most prevalent states of India.

"So far as I am able to judge, nothing has been left undone, either by man or nature, to make India the most extraordinary country that the sun visits on his rounds. Nothing seems to have been forgotten, nothing overlooked."

—Mark Twain, from *Following the Equator*

It is impossible not to be astonished by India. Nowhere on earth does humanity present itself in such a dizzying, creative burst of cultures and religions, races, and tongues.

With more than 1 billion citizens, India is the second most populous nation in the world. It is not possible to speak of any one Indian culture, although there are deep social continuities that tie its people together. There are 24 languages that are spoken by

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a million people or more and countless other dialects. India has seven major religions and six main ethnic groups.

Overpopulation severely handicaps the economy, and about one quarter of India's people cannot afford an adequate diet. The economy has posted an average growth rate of 6% since 1990, with an expected growth of 7% to 8% in the current fiscal year, reducing poverty by about 10 percentage points.

India has its health problems too. With an infant mortality rate of 59.6 deaths per 1,000 live births, the Indian health system needs much development. The life expectancy at birth is 63.6 years, which is lower than many neighboring countries (UNAIDS, India, 2003). Infectious diseases such as malaria, dengue, leishmaniasis, and tuberculosis are major sources of morbidity and mortality in India. Protein-energy malnutrition, diarrheal diseases, and acute respiratory infections are the leading causes of death in children (United Nations, 2003). Noncommunicable diseases such as cancer and cardiovascular diseases are emerging as major health concerns that will require considerable financial resources for control. Meanwhile, HIV has been ranked first as the leading disease burden in India in 2002 (World Health Organization [WHO] 2002).

EPIDEMIOLOGY OF HIV/AIDS IN INDIA

COUNTRY OVERVIEW

India has a population of 1.027 billion, second only to China; collectively these two countries have a quarter of the world's total population. Although only an estimated 0.7% of the adult population is infected by HIV, India has, by virtue of its mammoth population, the highest number of HIV-seropositive patients in the world—the estimated number of HIV-infected individuals is a staggering 4.5 million (National AIDS Control Organization [NACO], 2004).

The first AIDS case in India was detected in 1986 in Chennai (Simoes et al., 1987). Since then, the HIV/AIDS epidemic has seen steady growth. In 1990 HIV levels among specific high-risk populations, including sex workers, sexually transmitted disease (STD) clinic patients in Maharashtra, and injection drug users (IDUs) in Manipur, reached over 5%. By 1994 HIV was widespread in the industrial states of Gujarat and Tamil Nadu. During 1999 HIV/AIDS was found to have extensively infected high-risk populations in Mumbai; about 60% of the sex workers in some Mumbai areas were reported to be HIV-seropositive. In 2001 HIV infection rates rose to over 1% among the low-risk population (represented by antenatal clinic attendees [ANC]) in five states. In 2003 one more state (Nagaland) joined the high-risk category of Indian states (NACO, 2003; UNAIDS, India, 2003; WHO, India, 2003).

AREAS AND COMMUNITIES AT RISK

Based on the 1999 surveillance report, India can be divided into high-, medium-, and low-risk states according to HIV seroprevalence. High-risk states are defined as those where HIV prevalence in ANC is more than 1%. Moderate-risk states are those where the HIV prevalence in ANC is less than 1%, but the prevalence in STD clinic attendees and other high-risk population is over 5%. The low-risk states are those where HIV prevalence in ANC is less than 1%, and HIV prevalence among STD clinic attendees and other high-risk populations has not exceeded 5% (NACO, 2004) (Figure 1).

The epidemic in India is a combination of many smaller epidemics seen in different parts of the country. The most widespread focus of infection can be seen in the western and southern Indian industrialized states, where the spread of HIV is mainly

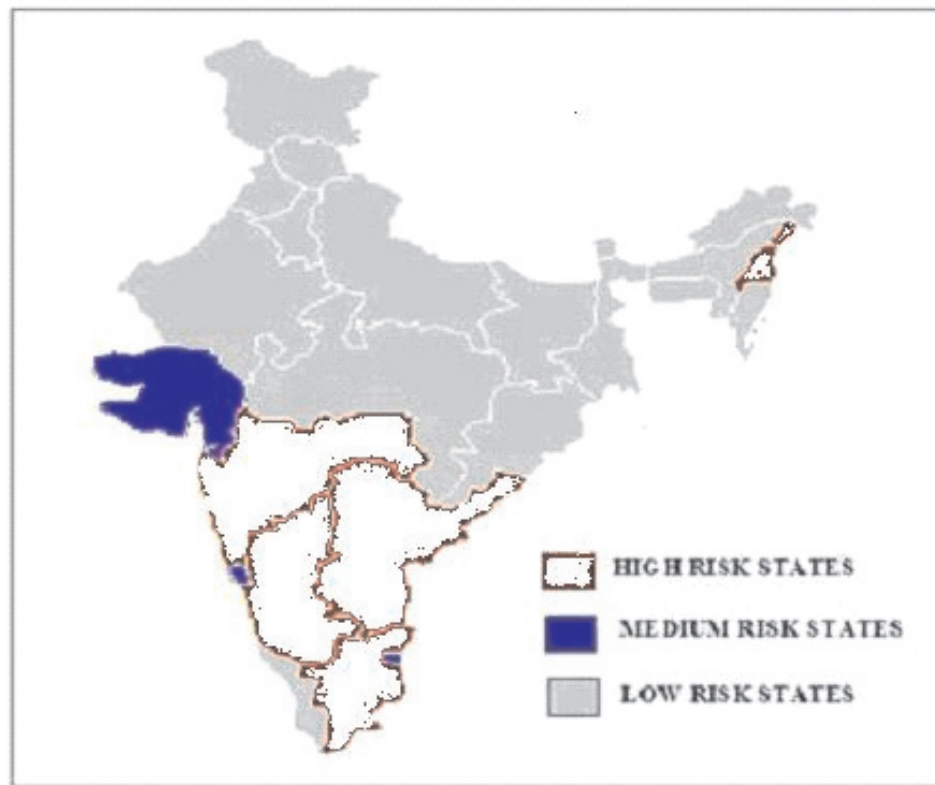


FIGURE 1. The prevalence of HIV by states in India, 2003.
Note. From National AIDS Control Organization.

through the heterosexual route from sex workers and their clients. Another nucleus of HIV infection is seen in the IDU population and their sexual partners in the smaller and less densely populated northeastern states of Manipur and Nagaland, which are adjacent to the Golden Triangle of drug trafficking in Asia. Until now, the densely populated large northern states of India claim to be relatively less affected by this epidemic (see Figure 1). As a result, as many as 96% of the total number of nationally reported AIDS cases is from only 10 states and union territories in India.

The distribution of transmission routes of HIV among the reported AIDS cases is shown in Figure 2, with heterosexual transmission accounting for the largest number of cases (NACO, 2004). The proportion of other common routes of infection, such as blood-borne and IDU transmission, have decreased in recent years as compared with heterosexual transmission.

SENTINEL SURVEILLANCE OF HIV/AIDS IN INDIA

In the Indian context, due to its geographical vastness and lack of resources, it is difficult to estimate the exact prevalence of HIV. The cultural and traditional diversity and the consideration of topics pertaining to sex as taboo also hinder work related to HIV/AIDS. In this setting the sentinel surveillance system has been chosen as the best way to estimate the prevalence and to monitor trends of HIV infection in specific high- and low-risk populations in India. Selected sentinel sites representing the various

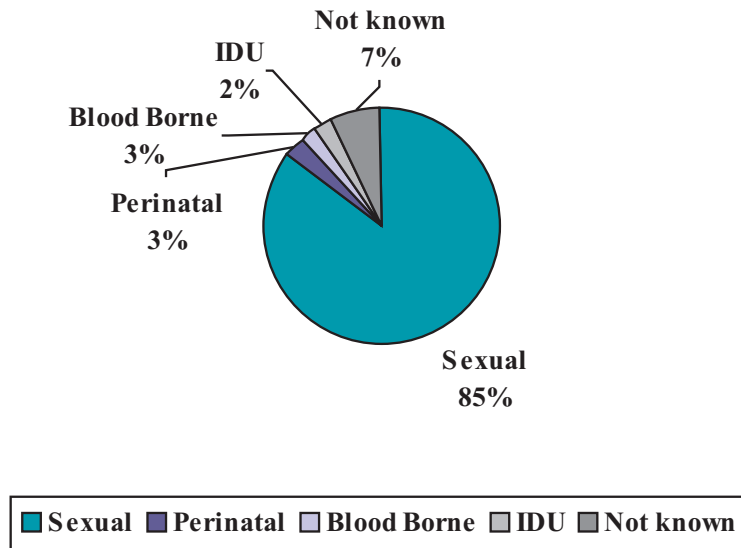


FIGURE 2. Transmission routes of HIV in India by percentage of total cases in India, November 2003.

Note. IDU = injection drug user. From National AIDS Control Organization.

groups are screened for HIV prevalence every year between August and October. Initially there were 55 sentinel sites in 1994, which expanded to 180 sentinel sites in 1998 and 232 sentinel sites in 2000. Addition of new sites and deletion of a few existing sites occurs each year. The population groups are chosen based on high-risk behavior (e.g., STD clinic attendees, IDUs, men who have sex with men [MSM]) and those at low risk (e.g., ANC attendees). Samples are collected according to an “unlinked anonymous” procedure. As of 2003, the different sentinel sites included 109 sites in STD clinics, 110 sites in ANC, 11 sites for IDUs, and 2 sites for MSM. The data, thus collected, are analyzed to assess trends of HIV prevalence rates among identified risk populations over the years (NACO, 2003).

The number of reported cases of AIDS in India, as published by the NACO, has seen a steady increase over the years (NACO, 2004) (Figure 3). According to latest reports published by NACO in January 2004, the cumulative number of AIDS cases reported by government institutions in India is 62,785, with 46,082 males and 16,703 females (NACO, 2004). Based on HIV sentinel surveillance data, an estimate of the total annual number of HIV cases has been developed by NACO (Figure 4). By 2002 NACO estimated that 4.58 million Indians had been infected (NACO, 2004).

It can be inferred from the recent sentinel surveillance data from ANC in the major cities in the country that HIV prevalence has risen above 2% in Mumbai and Namakkal (Tamil Nadu); to 1% to 2% in the southern Indian cities of Hyderabad, Bangalore, and Chennai; and remains below 1% in Calcutta, Ahmedabad, and New Delhi.

The numbers published by NACO suffer from significant underreporting, and thus underestimate the actual magnitude of the epidemic in India. Due to stigmatiza-

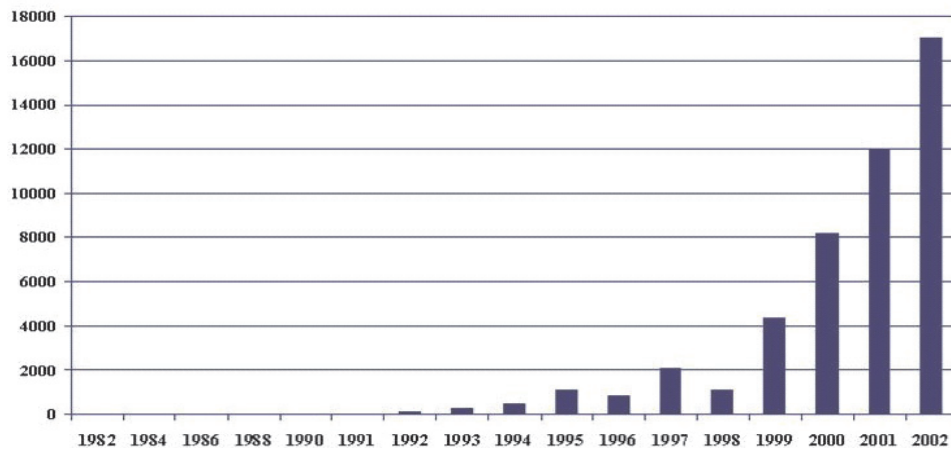


FIGURE 3. Number of reported AIDS cases in India.
Note. From National AIDS Control Organization.

tion, discrimination, and the attitudes of health care workers in certain settings, many patients access care and treatment from sources other than government institutions. Private medical institutions and nongovernmental organizations (NGOs) provide care for a huge number of AIDS patients in India, and they have witnessed a steady increase in the number of HIV patients over the last years. Their numbers are not included in the national data published by NACO.

PREVENTION OF HIV/AIDS IN INDIA

EARLY PREVENTION EFFORTS

In response to the first cases of AIDS in the mid to late 1980s, a high-powered committee was constituted under the Ministry of Health and Family Welfare. Subsequently, a National AIDS Control Program (NACP) was launched in 1987 to monitor the epidemic in India and to plan prevention programs. In the early years of 1986 to 1992, there was a strong sense of denial of the threat of HIV to India, which led to surveillance activities being launched in only 55 cities in only three of its 32 states. Program actions were left to the state governments, without any strong central guidance. In 1992 realization of the threat of the epidemic in India resulted in the First Acceleration Phase of the National AIDS Control Program Phase I (NACP Phase I). The national body for HIV/AIDS control, NACO, was formed in 1992. Improvement in blood safety by implementation of a national blood safety policy, increasing public awareness, reaching out to college youth, and launching individual projects such as interventions among sex workers in various red-light areas in different cities were carried out by NACO.

Despite these efforts, India witnessed a phenomenal increase in the infection rates among high-risk populations. Infection among sex workers in Mumbai increased from 1% to 51% in 5 years (1993-1998). Similarly, the trend among IDUs in Manipur rose from 1% to 55.8% during the same time period (NACO, 2004).

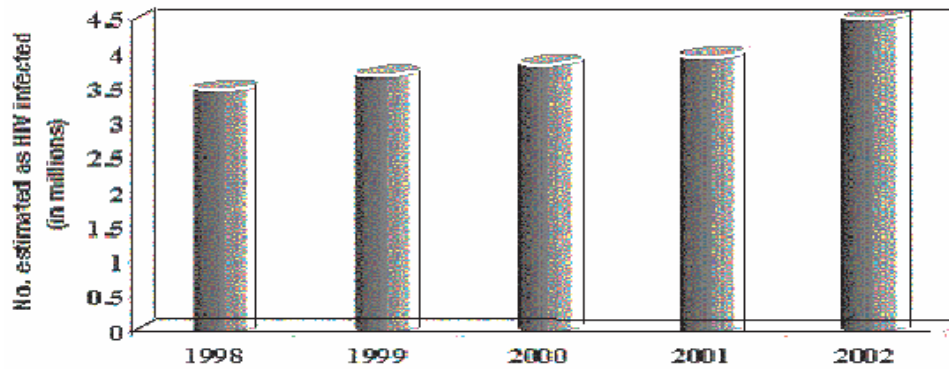


FIGURE 4. Number of estimated HIV cases in India, 1998-2002.

Note. Estimated by National AIDS Control Organization.

CURRENT PREVENTION EFFORTS

Phase II of the NACP (NACP II) was launched on November 9, 1999, by NACO. It is a 100% centrally sponsored scheme implemented in all 32 states and union territories and three municipal corporations (Ahmedabad, Chennai, and Mumbai) through AIDS control societies. The objective of this program is to focus on reducing the prevalence of HIV among high-risk populations such as sex workers, truck drivers, MSM, and IDUs by providing peer counseling, condom promotion, treatment of STDs, and so on.

The main goals of NACP II are reduction of the spread of HIV infection in India and increasing the country's capacity to fight HIV/AIDS on a long-term basis. Specifically, the target of this program is to keep the infection rate in Maharashtra (high risk) below 5%, to restrain the HIV infection rate in the other southern states and Manipur (medium and high risk, respectively) to less than 3%, and to less than 1% in the rest of India (mainly low risk). The program also aims to reduce the proportion of blood-borne transmission of HIV to less than 1% of all transmissions, to increase the HIV/AIDS awareness level to not less than 90% among youth and others in the reproductive age group, and to achieve condom use of not less than 90% among high-risk populations such as sex workers.

In addition to the initiative by NACO, hundreds of local, state, and national NGOs are working on HIV/AIDS-related issues in India. Projects include general awareness campaigns, care and support of people living with HIV, care for AIDS orphans, and working with the marginalized populations most at risk of HIV infection, such as sex workers, truck drivers, migrant laborers, MSM, and IDUs.

HEALTH EDUCATION AND AWARENESS

Improvement of health education and HIV/AIDS awareness is one of the most effective strategies to control HIV/AIDS. A successful communication program helps to promote behavioral change, in addition to increasing knowledge about the disease. Information, education, and communication (IEC) programs are conducted in local

languages, keeping in mind social norms, cultural beliefs, and the sensitivities of the community.

Mass awareness is being increased by initiation of the School AIDS Education Program by all states through involvement of the Department of Education and NGOs, and also by conduct of National Family Health Awareness Campaigns twice a year to sensitize communities to STDs and HIV/AIDS, particularly in urban slums and rural areas. Advocacy campaigns at all levels in civil society have been initiated to provide momentum to control and prevention efforts and to integrate the issue of HIV/AIDS into a wider multisectoral response. Activities with political and religious leaders have created an enabling and positive environment for ordinary people to become motivated and take an interest in different programs. Popular film stars and other celebrities have also played a role in mass awareness campaigns. The Song and Drama Division of the government of India has been involved in rural outreach programs to increase AIDS awareness. The division has produced several street plays, songs, and dramas, and has performed in 400 different locations, utilizing the local drama troupes in many states. A toll-free national AIDS telephone help-line has been set up to provide access to information and counseling on HIV/AIDS-related issues. A National Institute of Mental Health-funded study, the Community Popular Opinion Leader (CPOL) model in five countries, including India, is a novel intervention in which CPOLs are trained to diffuse personalized standard messages to their peers.

School AIDS education programs and the University Talk AIDS Project focus on student youth to raise awareness levels, help them resist peer pressure, clarify their misconceptions, and help them develop a safe and responsible lifestyle. The activities include training of teachers and student peer educators, role-playing, debates and discussions, question boxes, and access to referral services. The key message is to delay first sexual experience and adopt safe sex practices. UNICEF has an ongoing project to cover all government schools in Tamil Nadu by NGOs, using the training-of-the-trainer model with a participatory approach. YRG CARE has been the lead organization in coordinating this program (2003-2004), covering seven districts with the help of five trainer NGOs; namely, HELP, Harur and World Society, Tirupattur from Dharmapuri District, Humane Trust, Neyveli from Villipuram District, FORD, Dindigul, and Mother Saratha Development Social Service Society from Dindigul District. Peers are given an option of "ABC" for the prevention of HIV through sex: A, abstain from sex; B, be mutually faithful ("one man, one wife, for life"); C, condoms if "variety is the spice of your life."

Since the inception of NACP health awareness programs, awareness of the disease has increased from 54% to 78% among the urban population and, even more remarkably, from 13% to 64% in the rural population. Condom distribution has seen a 50% increase. The blood supply has become significantly safer. The country has witnessed an increased STD control effort, with the number of STD clinics increasing from 372 to 504 (NACO, 2003). Better knowledge of HIV among health care providers through training workshops in the regional training centers has led to improved care of HIV/AIDS patients.

VOLUNTARY COUNSELING AND TESTING (VCT)

It is important for every nation to have effective voluntary counseling-and-testing (VCT) services for HIV infection. The benefits of VCT include early diagnosis and management of HIV infection and, thus, improvement in quality of life, as well as primary and secondary prevention of HIV infection. VCT is a relatively cost-effective in-

tervention in preventing HIV transmission, and is thus considered to be an important component of HIV prevention.

VCT in India is the process by which an individual undergoes counseling, enabling him/her to make an informed decision about being tested for HIV, based on a confidential and private relationship with the counselor. In Phase II, NACO has expanded its network of VCT centers up to the district level. All districts in the high-prevalence states of Andhra Pradesh, Karnataka, Maharashtra, Manipur, and Nagaland have at least one VCT facility, with a gradual increase of VCT services at the district level in the other states as well (www.naco.nic.in).

Health counseling is a new concept in India, and patients are much less proactive in seeking health care than in developed countries. In the context of HIV test counseling, the process of building a risk inventory involves discussing the sexual lifestyle of the client. In India this falls into the realm of taboo. Worse, because high-risk behavior is viewed as morally wrong; few high-risk individuals visit the VCT centers. Thus, only a fraction of persons in India living with HIV are aware that they are infected.

TARGETED INTERVENTIONS FOR THOSE WITH HIGH-RISK BEHAVIOR

Certain categories of people who are at a higher risk for acquiring and transmitting HIV infection, such as sex workers, IDUs, MSM, and people separated from their families for long periods of time, such as truck drivers and migrant laborers, are important priorities for implementing cost-effective interventions to prevent the spread of HIV infection to the general population. Because the majority of these groups are both socially and economically marginalized, it is not possible to access them through conventional government services; thus, NGOs, community-based organizations, and other appropriate agencies must be used to reach out to these people more effectively. To date, 554 projects have been undertaken by the State AIDS Control Societies through NGOs in different locations in the country, of which more than 50% are in the high-prevalence states (NACO, 2004).

Many NGOs work with migrant laborers, who are at increased risk of acquiring HIV from sex workers because of their prolonged separation from their families in rural areas of India. The Association of Francois-Xavier Bagnoud India (FXB) and Voice of Migrants (VOM) are prominent NGOs. FXB works with migrants in Rajasthan, and VOM is a network of 17 community-based organizations that work with migrant populations supported by the United Nations Development Program (UNDP), REACH. Their activities include community programs such as condom distribution, general health check-ups, counseling, referrals for care, and use of folk media such as plays and puppet shows to generate AIDS awareness among migrant laborers (Association of FXB, 2004; You and AIDS, 2004).

Some of the tribes in India such as Todas in the Nilgiri region still practice polyandry, thus increasing the chance for a miniepidemic among the population. These tribal communities are considered high risk, and special efforts are needed to spread AIDS awareness in these tribes, both on the part of NACO and NGOs (Global Reproductive Health Forum, 2004).

Homosexuality is considered a criminal offence in India. Social injustice associated with homosexuals in the context of gender, sexual orientation, poverty, stigmatization, and discrimination is very common. It is therefore very difficult to identify and reach out to a large number of homosexual and bisexual people in the community. Various NGOs such as the Humsafar Trust in Mumbai and the Naz Foundation (In-

dia) Trust based in New Delhi deal with issues concerning MSM. Their main activities are community outreach work, advocacy on gender and sexuality issues concerning sexual minorities, and research on these issues. The Humsafar Trust works collaboratively with the government, public health authorities, the medical sector, and various social groups involved in sexual health and social empowerment. The trust has sought legal advice from the Lawyers Collective to challenge Section 377 of the Indian Penal Code, which criminalizes homosexuality. Sangini, a support group and help line for lesbian and bisexual women, addresses issues of sexuality and sexual identity, and offers counseling for women who are confused about their sexuality. Naz India provides a supportive environment for MSM and helps them to make choices for safe sexual practices through the various MSM support groups such as Humnawaaz, Humjoli, and Humrahi. These groups also help evolve strategies that focus on empowerment, sexual choice, autonomy, and concerns related to sexual health, which includes HIV/AIDS. Naz Dost is a dedicated helpline for gay and bisexual men (Naz Foundation, 2003).

The main route of HIV transmission in the northeastern region of India, such as Manipur, is through sharing of syringes and needles for injecting drug use. Close proximity to the Golden Triangle, prevailing lack of law and order in these states, and peer influence are reasons for the widespread prevalence of injection drug use. A varied number of interventions have been cited, including judicial custody, insistence of selling syringes only on prescription, and marginalization of drug users. Unfortunately these efforts resulted in IDUs going underground with their activities, accelerating the problem. The marginalization of IDUs has led to complete neglect of their social, health, and legal needs, thereby promoting the spread of HIV within this population, and the risk of HIV transmission from IDUs to their sexual partners and children. With the increase in HIV prevalence in this group, a multisectoral response is needed. Notable and effective programs have been harm minimization, including needle syringe exchange programs and programs substituting oral drugs for injection drugs. As a result, the present incidence of HIV infection among active users in Manipur has come down to nearly 37% (*Proceedings of the National Conference on Management of HIV/AIDS in Resource-Restricted Settings*, 2004). The advocacy of NGOs such as SASO has led Manipur to be the first state in the region to pass government legislation endorsing harm reduction. Needle exchange programs have also been sanctioned in the southern state of Tamil Nadu. To reach more IDUs, there is a need for more funding and a change in the social environment. Sustenance of the program will depend upon integration of this program into the government structure (SIDA, 2003).

The problem with IDUs in Chennai is complicated by widespread use of buprenorphine, which leads to riskier sexual behaviors comparable to IDUs using heroin, resulting in increased casual sex and sex with sex workers, often without condoms. Sahai Trust, an NGO in Chennai working on harm minimization for IDUs, collaborates with ex-drug users and professional social workers for their outreach intervention activities. The outreach workers provide face-to-face education about the basics of HIV, information on decontamination of syringes and use of bleach for cleaning injecting equipment, and distribute condoms. They discuss medical and social problems and facilitate the use of deaddiction treatment services. These programs only recruit male users; they have not been able to identify female drug users. Outreach programs have provided substantial opportunities to contact and work with the hard-to-reach IDU populations. Earlier addicts were identified by the police if they

were in possession of a syringe, so many drug users stopped carrying their own syringes, which led to increased needle sharing. A policy change by the police force, of not harassing people carrying their personal syringes, has led to less sharing of injecting equipment in this part of the country (Kumar, Mudaliar, & Daniels, 1998).

Truck drivers are at high risk for contracting HIV through unprotected sexual contact along the highway, due to prolonged periods away from home. This is similar to the risk faced by migrant laborers. Ahmedabad, situated in western India, known for a high rate of HIV infection among highway truck drivers, has now taken on a new message. Under the aegis of the All India Transport Welfare Association (AITWA) founded in 2001, it has rolled out a caravan of trucks titled *Raston Ka Rahee—Jaagriti Rath*, or “It is our duty to sensitize him to the danger of AIDS on the highways”. Utilizing documentary films featuring the real-life cases of HIV-affected truck drivers, the team of health officers and volunteers reach out to truck drivers all across the nation. AITWA is jointly working with the Bombay Ludhiana Roadways to install condom vending machines at roadside eateries, petrol pumps, and transport hubs across the country (Info Change Health). The India AIDS Initiative of the Bill and Melinda Gates Foundation has targeted 50 key trucker halts from over 7,000 kilometers of the National Highway. The Indian Oil Corporation (IOC) provides access to about 4,000 petrol pumps that serve as information and service points. The Transport Corporation of India ensures access to thousands of trucks everyday and involves truckers.

According to a report of the recent seventh wave of the Behavioral Surveillance Survey (BSS), the treatment-seeking behavior for symptoms of STDs by truck drivers and their helpers from a qualified medical practitioner has increased from 64% in 1996 to 73.7% in 2002. The percentage of truck drivers and helpers who reported nonregular sex decreased from 48% to 27% in 2002. Reported sex with a casual partner also decreased from 16.4% to 8.5% in 2002. Condom usage during one’s last sex act with a nonregular partner increased from 44% in 1996 to 73.7% in 2002 (NACO, 2002).

The Saheli (“friend” in Hindi) Project in the Kamathipura red-light area of Mumbai is an example of targeted intervention for the prevention and control of HIV among sex workers. This project has developed a three-tiered system of peer leaders: Saheli (“friend”) for sex workers, Tai (“sister”) for brothel managers, and Bai (“mother”) for brothel owners. In addition to educating their peers, Saheli acts in street plays to educate large groups, address public meetings, give television interviews, and conduct training programs for health care workers and social workers all over India (Gilada, 1998).

In Calcutta, situated in eastern India, HIV prevalence among the general population is low. In the Sonagachi red-light district of Calcutta, sex workers, with the support of the government and NGOs, have organized themselves into a crusading force to promote the use of condoms in the sex industry. The female sex workers admit that most of their clients do not want to use condoms, but the Sonagachi women have become such a force that they refuse reluctant clients. A World Bank report states that condom use has risen from 3% in 1992 to over 90% in 1998 (World Bank Group, 1999). As a result, HIV infection has remained at 5% in this area, compared to the high infection rate of more than 50% among sex workers in Mumbai. In Tamil Nadu, street-based female sex workers constitute the majority (90%) of HIV infections compared to brothel-based female sex workers. They are also highly mobile between the southern states of India.

CONDOM PROMOTION

The condom promotion program of NACO is an important strategy to combat HIV/AIDS. The objective of the program is to ensure easy access to good-quality, affordable, and acceptable condoms to promote safe sexual encounters. The Department of Family Welfare promotes distribution of condoms through the network of health infrastructures working in hospitals, clinics, and health centers. The government also provides name-brand condoms at greatly subsidized prices. In addition, commercial condoms are widely available at STD clinics and pharmacies.

Despite these efforts, the outcome has not been satisfactory. In a recent survey (Family Health International, 2001), the percentage of clients of sex workers who reported consistent use of condoms was 66%, whereas with others it ranged from 0% to 30%. Condom use among sex workers during their last sexual encounters was 88% in Tamil Nadu and 77% in Maharashtra, and among truck drivers, 78% in Tamil Nadu and 37% in Maharashtra, whereas in the general population, it was only 7.9% (USAID/India, 2003).

CONTROL OF STDs

As part of NACP, district women's hospitals, in addition to STD clinics functioning in medical colleges and district hospitals, have been strengthened for management of reproductive tract infections, including STDs. Financial support is being provided to all states for management of "opportunistic infections" for people living with HIV/AIDS.

India has a very high rate of STDs; the current estimates are about 6% to 9% of the population, with more than 40 million new infections per year. Those with low incomes cannot afford to buy condoms or get treatment for STDs. Untreated STDs increase the risk of HIV transmission. A community prevalence study of STDs, including HIV and hepatitis B, indicated an overall prevalence rate of 14.6% in Tamil Nadu (Thomas et al., 2002). The distribution of HIV involved both rural and urban regions of Tamil Nadu (Kurien, Thyagarajan, Jeyaseelan et al., 2002).

STD clinics functioning in district hospitals have been improved, and doctors have been trained in syndromic management of STDs. Drugs for treating STDs are being provided by the state AIDS control societies to all the government STD clinics, as well as the reproductive and child health clinics. To ensure complete and correct treatment, uniform guidelines and flowcharts have been distributed to all medical practitioners, both in government hospitals and in private practice, thus reducing the likelihood of increasing drug resistance.

The Indian Oil Corporation and Transport Corporation of India will work with Population Services International on the highway program to distribute condoms, using a "social marketing" approach and franchise of STD services.

BLOOD SAFETY IN INDIA

In addition to focusing on high-risk and other target populations, a major emphasis of the NACP has been improving blood safety in India. However, even in 2003, India has not been able to completely stop HIV transmission through blood/blood product transfusion.

The National Blood Policy has been formulated for better management and safety of blood and blood products, and is expected to provide a policy framework for further activities. In rural areas and in smaller hospitals where it is not practical to run blood banks, storage centers providing tested blood have been developed. In the less

developed states, modern blood centers are being set up with financial and technical support by NACO, but will later become the responsibility of the state governments.

PREVENTION OF VERTICAL TRANSMISSION

Prevention of mother-to-child transmission of HIV is an important aspect of controlling the HIV/AIDS epidemic. There are 27 million live births a year in India, and an overall estimated 0.8% prevalence rate of HIV infection among pregnant women; thus, it is estimated that about 216,000 HIV-infected women deliver each year. In January 2000 a pilot study was initiated in 11 ANC to assess the feasibility of administering zidovudine (AZT) for the prevention of parent-to-child transmission (PPTCT). A subsequent study of nevirapine was initiated in October 2001 in the same 11 clinics. The choice of breast-feeding was left to the mothers. With increasing HIV infection rates among antenatal women in certain high-prevalence states in India, pediatric AIDS is poised to become an important public health problem. In the second round of Global Fund for AIDS Tuberculosis and Malaria, India has U.S.\$100 million to step up PPTCT and provide antiretroviral drugs, if needed, to mothers as part of the PPTCT program.

BETTER CARE OF HIV-INFECTED INDIVIDUALS

People living with HIV/AIDS (PLHA) experience a variety of health and social support needs as their illness progresses and opportunistic infections set in. For the clinical management of these cases, certain policies and guidelines have been developed. All government hospitals have been instructed to admit HIV/AIDS cases without discrimination. Discharge certificates only refer to their opportunistic infections, without mention of HIV seropositivity, although the case sheet at the hospital keeps those records. HIV/AIDS patients admitted into general hospitals receive drugs for opportunistic infections free of cost. Because the cost of antiretroviral drugs is high, efforts are being made by NACO to exempt customs and excise duties on all antiretroviral drugs to reduce their cost.

At the end of 2003, Sushma Swaraj, the union minister for Health and Family Welfare, announced a policy and program commitment for providing antiretroviral treatment to 100,000 PLHA free of cost, with implementation on April 1, 2004. According to this program, the government of India will provide antiretroviral treatment in government hospitals in the six high-prevalence states: Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu, Manipur, and Nagaland. Phase I will prioritize according to groups: seropositive mothers who have participated in the PPTCT program, seropositive children below the age of 15, and PLHA who seek treatment in government hospitals (NACO, 2003). A study conducted by Horizons and the International HIV/AIDS Alliance examined the complex process of scaling up the YRG CARE model of comprehensive and holistic prevention, care, treatment, and support services, a "continuum of care" for PLHA, to four new sites in southern India. The scale-up approach included transfer of core values: patient-centered care, client confidentiality, and the broader involvement of families and communities, keeping in mind the different contexts, cultures, and resources of these scale-up sites. Over the three-year period, the four sites extended their focus from improving clinical, laboratory, and technical capacities to enhancing counseling and social support services. This collaboration is also working on the impact of integrated care and support services on the lives of PLHA. The differences in the quality of life of the patients reflect the very different experiences of Indian men and women who are HIV-positive. It was seen that women in particular rated their overall quality of life as low after diagnosis

and expressed less confidence about their futures as compared with male clients. Women expressed greater fears than men about being alone as they become more ill. In contrast, men worried more about maintaining sexual relationships and having enough energy for daily life. Overall, most clients, both men and women, reported improvement in their quality of life over the study period. For those with advanced HIV disease, physical improvement was most pronounced, including improved ability to work, sleep, and eat. Psychological improvements were also reported, particularly by moderate- and advanced-stage clients (Dadian, 2003).

Reduction of stigma and discrimination, along with protection of human rights in the workplace, is a priority area for the National AIDS Control Program. Political advocacy at the level of the prime minister of India has been initiated in collaboration with the International Labor Organization and the Ministry of Labor to enforce a code of conduct in the workplace to ensure nondiscrimination in recruitment and during employment.

DISCUSSION

Stigmatization of HIV-infected persons by the community and lack of HIV awareness are two of the most important problems in India's battle against HIV. A huge burden of illiteracy (42% of Indian adults) (USAID/India) and poverty are believed to be contributing factors for risk of HIV infection. Efforts aimed at reducing stigmatization and promoting HIV awareness are of foremost importance to fight the HIV epidemic.

Proper health education programs help increase health awareness in the community, and with health awareness comes diminished stigmatization in society. Health education programs such as IEC should ideally be interactive and address issues of sex and sexuality, which are traditionally not discussed openly in conservative societies such as India. Talking about sex is taboo, and efforts by policy makers to introduce sex education into schools are halfhearted. The government has banned discussion of condoms in schools and universities, despite the fact that a large percentage of girls are married by the age of 16. Tradition dictates that girls are not supposed to know anything about sex or contraception before they marry. Poor and rural communities, which are at greater need for HIV awareness and sex education because of their illiteracy, are traditionally more conservative; thus, any effort of dispelling myths about HIV in these communities becomes more difficult to implement.

In the male-dominated culture of India, women are becoming increasingly more vulnerable to infection. Infection rates among women and newborns are rising, due to women's inability to protect themselves and negotiate for safer sex. There are many social precursors for the rapid spread of HIV in the country, including the inability to talk openly and learn about sex and sexuality, pressures from family to give birth to an heir and an implicit threat to the marriage when a woman does not bear a child, the high prevalence and acceptability of domestic violence against women, the moral double standard imposed on men and women, and the lower status of women in general. The pressure to bear children is so intense that when a woman must choose between avoiding becoming infected with HIV by her husband but remaining childless and conception with the possibility of becoming HIV-infected, she often chooses the latter. As a result, three quarters of HIV-positive women in India were infected within a few years of marriage.

In the fight against AIDS, India has received substantial financial support from international organizations. Still, India lacks financial resources to implement all HIV/AIDS programs to their full effect. Although blood products have become signifi-

cantly safer, they are not yet entirely safe in all parts of India, and new cases of HIV are still reported to be due to contaminated blood transfusions. Similarly, lack of economic capacity in distant rural centers leads to unsatisfactory levels of STD diagnosis and treatment in these areas, thereby fueling the HIV epidemic in these communities.

Despite its efforts, India is experiencing a steady increase in HIV infections and an increasing magnitude of STDs and opportunistic infections such as tuberculosis. This has a profound impact on India's economy. The HIV epidemic in India has been mostly confined to the industrial areas of western and southern India, leaving the densely populated northern states mostly unaffected. The Center for Strategic and International Studies in Washington has estimated India will have 25 million HIV cases by 2010.

The HIV situation in India may not have been alarming at first glance; however, a small percentage-point rise in HIV incidence must be viewed in absolute numbers as a multiple of a billion inhabitants.

"The choice now is clear and stark: India can either be the home of the world's largest and most devastating AIDS epidemic—or, with the support of the rest of the world, it can become the best example of how this virus can be defeated."

—Bill Gates

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HIV/AIDS Education and Prevention in Myanmar

Min Thwe

Myanmar has a diverse population, 70% of whom reside in rural areas. These factors, along with limited resources, create a challenge for monitoring and controlling the HIV/AIDS epidemic. The first HIV-infected individual was identified in 1988, and the first AIDS case was reported in 1991. The National AIDS Control Program and the National AIDS Committee were established in 1989. Sentinel surveillance was begun in 1992. A cumulative total of 45,968 HIV/AIDS cases have been reported through 2003. UNAIDS and the government of Myanmar estimated that there were 177,279 persons living with HIV/AIDS in Myanmar in December 2001. High prevalence rates of HIV have been identified in injection drug users (IDUs), commercial sex workers (CSWs), and men attending sexually transmitted disease clinics. Levels of HIV in all groups appear to have leveled off, but the prevalence remains high in IDUs and CSWs. A 100% targetted condom promotion program was implemented in 2001. Political commitment to control HIV/AIDS has been established through the leadership of the government and establishment of AIDS committees extending down to the township and rural health center levels. An increased understanding of the problems that Myanmar faces in controlling HIV transmission and increased support from international agencies and nongovernmental organizations can play an important role in facilitating more intensive intervention activities.

Myanmar, also known as “the land of pagodas,” is located in Southeast Asia. It borders China in the north and northeast, the Lao People’s Democratic Republic and Kingdom of Thailand in the east and southeast, and the People’s Republic of Bangladesh and the Republic of India in the west. For administrative purposes, the country is divided into 14 states and divisions, 63 districts, and 324 townships. It is estimated that the population in 2002 was about 52.17 million, with 70% of the population residing in rural areas (Health in Myanmar, 2003). The National Health Committee, a high-level interministerial committee chaired by the prime minister, formulates policies related to health. For the formation of the National Strategic Plan to control HIV/AIDS in the country, a multisectoral body known as the National AIDS Committee was founded under the National Health Committee in 1989. The National AIDS Program established in the Department of Health under the Ministry of Health works within the policy matrix of the National AIDS Committee.

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NATIONAL AIDS PROGRAM

AIDS is one of the priority diseases of the National Health Plan of Myanmar. The National AIDS Program includes 40 AIDS/STD Prevention and Control teams that are strategically located in all states and divisions of Myanmar. The action plan for AIDS and sexually transmitted disease (STD) prevention and control activities is part of the National Health Plan.

Surveillance for HIV and AIDS began in Myanmar in 1985. The first AIDS patient, an injection drug user (IDU), was reported in 1991. The results of HIV testing of donated blood, hospital patients with clinical signs and symptoms suggestive of AIDS, and AIDS deaths were also reported to the Ministry of Health. The Sentinel Surveillance System is strengthened by the Behavioral Sentinel Surveillance System, the STD (Syphilis) Sentinel Surveillance, and establishment of the Second Generation Sentinel Surveillance. HIV Sentinel Surveillance and Behavioral Surveillance surveys are conducted in all states and divisions, totaling 30 sentinel sites.

MILESTONES OF HIV/AIDS PREVENTION AND CONTROL IN MYANMAR

A brief time line of HIV/AIDS prevention efforts in Myanmar can be summed up as follows:

- 1985: Ad hoc studies for HIV started
- 1988: First HIV infection reported
- 1989: AIDS Control Program started with a short-term plan
- 1989: National AIDS Committee established
- 1991: First AIDS case reported
- 1992: HIV Sentinel Surveillance started
- 2000: Prevention of Mother-to-Child Transmission Program
- 2001: 100% condom use program started
- 2003: "ART for People Living with AIDS" started in the public sector

SITUATION ANALYSIS OF HIV/AIDS/STD TRENDS

A cumulative total of 45,968 HIV-positive individuals (among blood donors and hospital patients suspected of having AIDS), 6,727 AIDS patients, and 2843 AIDS-related deaths were recorded by the National AIDS Program during the period from 1988 to March 2003. The reports were from hospitals in different parts of the nation. Most of the AIDS patients and HIV-positive individuals detected were in the 20-40 year age group, with a male to female ratio of 6 to 1.

The Myanmar Ministry of Health and UNAIDS headquarters in Geneva jointly held a workshop in March 2002 in order to estimate of the number of people living with HIV/AIDS in the country. The group estimated that there was a total of 177,279 people living with HIV/AIDS in Myanmar at the end of 2001.

The following trends have been observed from the HIV sentinel surveillance between 1992 and 2003. The surveillance involved primarily urban populations. The rates of prevalence in the low-risk groups (women attending antenatal clinics, new military recruits, and blood donors) have remained low (Figure 1). The prevalence among men attending STD clinics has also remained steady but at a higher level. A decreasing trend was observed among IDUs at detoxification centers, but there was an increasing trend among commercial sex workers (CSWs) attending the STD clinics in Yangon and Mandalay, the only two cities in which sentinel surveillance is conducted among CSWs. The prevalence of syphilis declined in both the low- and high-risk senti-

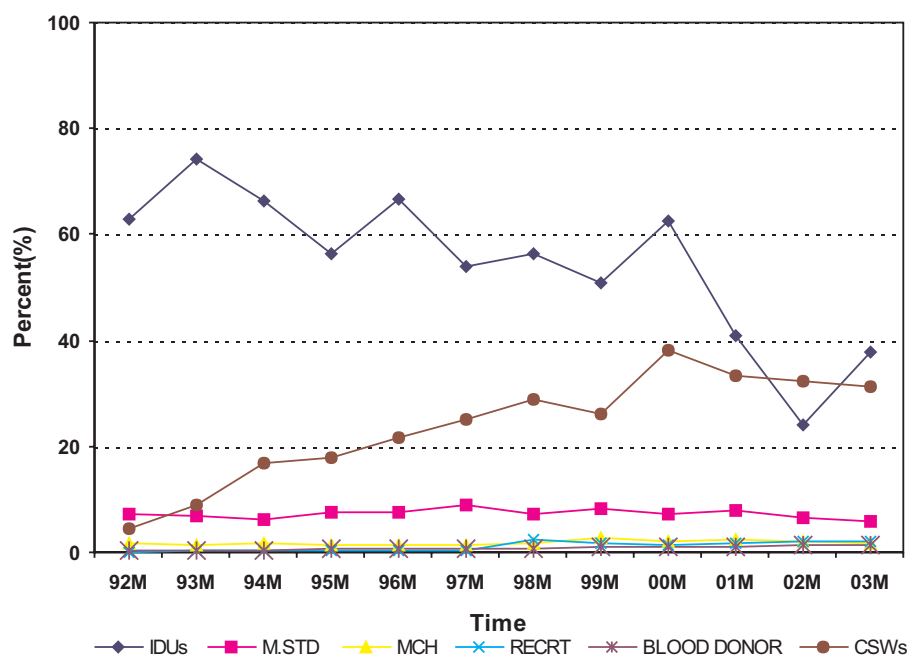


FIGURE 1. Trends of HIV Prevalence among the Urban Institution-Based Subpopulation Group of the HIV Sentinel Surveillance, Myanmar, 1992–2003

nel groups, which might have been due to the education campaign that included promotion and social marketing of condoms.

OBJECTIVES AND STRATEGIES OF THE NATIONAL AIDS PROGRAM

The general objective of the National AIDS Control Program is to increase the awareness and perception of HIV/AIDS in the community by promoting access to information and education leading to behavioral changes and adoption of a healthy, safe lifestyle.

The strategies of the National AIDS Program for prevention and control of HIV/AIDS include:

- Promoting behavior change conducive to a healthy, safe lifestyle
- Prevention of sexual transmission of HIV through promotion of traditional values of sexuality by the community, the promotion of accessibility to condoms by high-risk groups, and the provision of early detection and prompt and effective treatment of STDs
- Prevention of parenteral transmission of HIV due to drug abuse, therapeutic interventions, and cultural practices such as tattooing and ear piercing
- Prevention of mother-to-child transmission of HIV
- Provision of safe blood and blood products

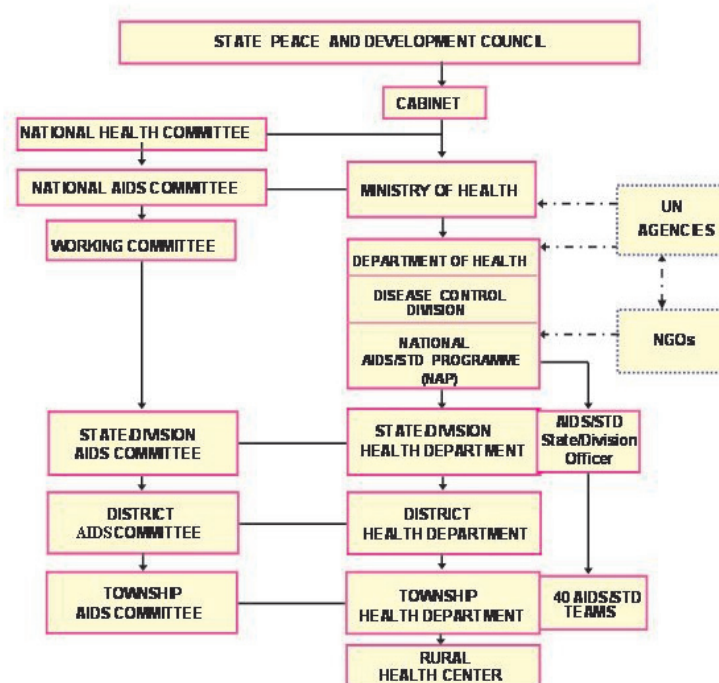


FIGURE 2. Administration of National AIDS Policy and National AIDS Programme.
Note. UN = United Nations; NGOs = nongovernmental organizations; STD = sexually transmitted disease.

- Provision of counseling services, treatment including antiretroviral (ARV) therapy and socioeconomic support for those infected and/or affected by HIV/AIDS
- Enhancing the capacity of the existing health systems, including strengthening community participation
- Intrasectoral (health sector) and intersectoral collaboration and coordination with national and international NGOs, UN agencies, donor agencies, and the private sector
- Promotion of research activities and service systems
- Strengthening of the surveillance programs for HIV/AIDS and STDs

SUCCESSFUL STRATEGIES USED IN THE PAST TO CONTAIN HIV TRANSMISSION

Obtaining Political Commitment by the Conduct of Regular and Constant Advocacy Meetings

The administrative structure of the National AIDS Program is shown in Figure 2. The State Peace and Development Council is the highest administrative body in the country. The cabinet reports to the State Peace and Development Council. Under the cabinet, the Ministry of Health and the subordinate committees implement and coordinate AIDS/STD prevention and control activities throughout the country. The policy and guidance matters related to health are issued by the National Health

Committee, a high-level interministerial committee chaired by the prime minister. Under the the National Health Committee, the National AIDS Committee was formed to closely monitor and provide guidance for AIDS/STD prevention and control activities, including those implemented by the Ministry of Health. Under the National AIDS Committee, state/divisional-, district- and township-level AIDS committees were formed to monitor and guide AIDS/STD prevention and implement control activities at the corresponding levels of administration. In addition, there is an AIDS/STD office at the state/division level and AIDS/STD teams at the township level that closely coordinate with the local health department.

Because political commitment is one of the major factors for successful implementation of intervention activities, authorities at different levels were regularly informed about the status of the HIV problem, emerging issues, and proposed activities for prevention and control of HIV. In addition, meetings of different levels of multisectoral AIDS committees throughout the country were conducted regularly. At the central level, the National AIDS committee meeting is conducted at least twice a year. At the intermediate level, state/divisional AIDS committees meet at least four times a year. At the peripheral level, district and township AIDS committees meetings are conducted every 2 months. There are many advantages of having these advocacies meet regularly. One obvious example is to maintain the commitment and a high level of cooperation by the local authorities in implementing 100% condom promotion among targeted populations in different parts of the country.

Frequent news stories related to HIV/AIDS prevention and control keep people informed. In addition, the program successfully conducted the First Exhibition on HIV/AIDS Prevention and Control Activities in Myanmar during the latter part of 2003. The opening ceremony was attended by the prime minister. Over 80,000 individuals from all levels of society visited during the 10-day exhibition period. In addition, there are nationwide commemorations of World AIDS Day throughout the country.

Health Education

Education is one of the fundamentals for HIV prevention. In Myanmar health education messages are targetted to the general population, as well as to high-risk populations, using different types and forms of media, with the support and assistance of the Ministry of Health, NGOs, UN agencies, the private sector, and related public organizations for increased perception of HIV/AIDS.

General Population. Advocacy meetings and AIDS/STD educational talks were held to educate and strengthen government agencies, NGOs, the private sector, and the community. Some examples of educational methods for the general population were AIDS billboards, AIDS education pamphlets, posters, and stickers. These items were also made available in 10 major ethnic languages. HIV/AIDS education messages were reported in daily newspapers and magazines, as well as in broadcasts, TV spots, documentaries, movies, and songs, especially during World AIDS Day every year and at the AIDS exhibition in 2003.

HIV/AIDS Education and Co-Curriculum for School Children. HIV/AIDS/STD preventive education is a major component of the nationwide School Health Programs conducted by the School Health Division of the Department of Health. Since 1998, in partnership with UNICEF and with technical input from the Ministry of Health, the Ministry of Education has implemented the School-Based Healthy Living and HIV/AIDS Prevention Education (SHAPE) Program in 104 townships as a co-cur-

riculum for fourth to ninth graders. The national life skills curriculum was developed and included as a part of basic education for primary, middle, and high school levels since 1999.

Out-of-School Youth. Many youth do not attend upper levels of school. Therefore, community-based HIV/AIDS and drug abuse prevention and education activities, as well as peer education programs, were implemented in coordination with national and international NGOs in their project townships.

Workplace. HIV/AIDS education activities have been implemented by the Ministries of Education, Labour, Transport, Social Welfare, Railways, Home Affairs, Industry, and so on for their constituents.

Women. Women are a particularly vulnerable population; therefore, HIV/AIDS education programs have targeted women of reproductive age. The educational messages were given as part of life skills training and social development for women, especially housewives. These activities are being conducted in coordination with national NGOs for women in their project areas.

Other Vulnerable Populations. An effective educational approach for vulnerable populations is peer education. Peer education programs have been implemented for high-risk populations such as migrants and mobile populations, with the assistance of national and international NGOs and community volunteers. Peer education programs were also implemented for high-risk groups such as CSWs and their clients through condom promotion programs, and for IDUs through harm reduction programs.

Holistic Approach of STD Prevention and Management

STDs are cofactors for HIV transmission and prevention, so prompt and effective management of STDs is very important for reducing HIV transmission. In Myanmar a three-pronged approach was used to tackle this problem. The cultural and traditional values of sexuality were promoted by the community through various forms of education programs, implementation of the 100% Condom Use Programme among targeted populations, and provision of early detection and prompt and effective treatment of STDs using syndromic approaches in the public and private sectors. Syndromic management of STDs has been adopted by both the public and private health systems in 264 strategic townships of the country.

Life skills training and social development for youth and young women are conducted by major national NGOs such as the Myanmar Maternal and Child Welfare Association, the Myanmar Red Cross Society, and the Myanmar National Federation for Women.

Scaling Up the Program

The National AIDS Programme has been scaling up the national response to HIV by increasing collaborative and cooperative intervention activities with partner agencies, including NGOs and UN agencies.

The Ministry of Health has developed sustainable AIDS education programs with various ministries, such as the Ministries of Education, Labour, Transport, Social Welfare, Railways, Home Affairs, Mining, and Information, and with private enterprises, including community-based organizations.

Many new NGOs signed memorandums of understanding with the Ministry of Health for collaborative activities in prevention and control of HIV/AIDS in the country during recent years. Other international NGOs such as Alliance and Family Health International are also exploring the possibility of future collaboration for HIV pre-

vention and control. In addition, Myanmar is cooperating in regional and international activities to control HIV/AIDS.

During 2003, the National AIDS Program successfully mobilized U.S.\$1.8 million for HIV/AIDS prevention and control activities in Myanmar. The government budget for HIV/AIDS prevention and control activities also increased to U.S.\$3,248,566 for 2003. As a result, major areas of intervention activities, such as 100% condom use promotion, prevention of mother-to-child transmission of HIV, and provision of voluntary confidential counseling and testing (VCCT) services in AIDS/STD clinics, were expanded, as shown in Figure 3. VCCT services are being conducted in 36 townships.

Widespread life skills training and AIDS education targeted for women of reproductive age were conducted throughout the country by the Myanmar Maternal and Child Welfare Association, the Myanmar Red Cross Society, and other NGOs, in collaboration with the Health Department, to prevent mother-to-child transmission of HIV. In partnership with WHO and UNICEF, the Ministry of Health has embarked on the Prevention of Mother-to-Child Transmission of HIV (PMTCT) Program by administering nevirapine to HIV-infected pregnant women in 12 towns in Myanmar between 1999 and 2002. During 2003 the program was expanded to a total of 22 towns.

The 100% condom use program among targeted populations was launched in four of the larger cities in early 2001 and was expanded to 15 towns in 2002. It is currently ongoing in 58 townships, with the support of WHO, UNAIDS, UNFPA, UNDP, and FHAM.

FUTURE CHALLENGES

HIV transmission continues at a moderate to high level, especially among IDUs and CSWs in Myanmar. Both populations are difficult to reach. The challenge in the resource-limited situation of Myanmar is to reach these populations with inexpensive, cost-effective intervention strategies. This is particularly difficult, because many of the areas of Myanmar are remote, difficult to reach, and populated by ethnic groups with different cultures and languages that are different from those in mainstream Myanmar. Until now, international support for the HIV/AIDS control program in Myanmar has been very limited in comparison to that received by other countries in the region. An increased understanding of the problems that Myanmar faces in controlling the transmission of HIV and increased support from international agencies and NGOs could play an important role in facilitating more intensive intervention activities in Myanmar. Issues other than HIV/AIDS itself should not prevent this help.

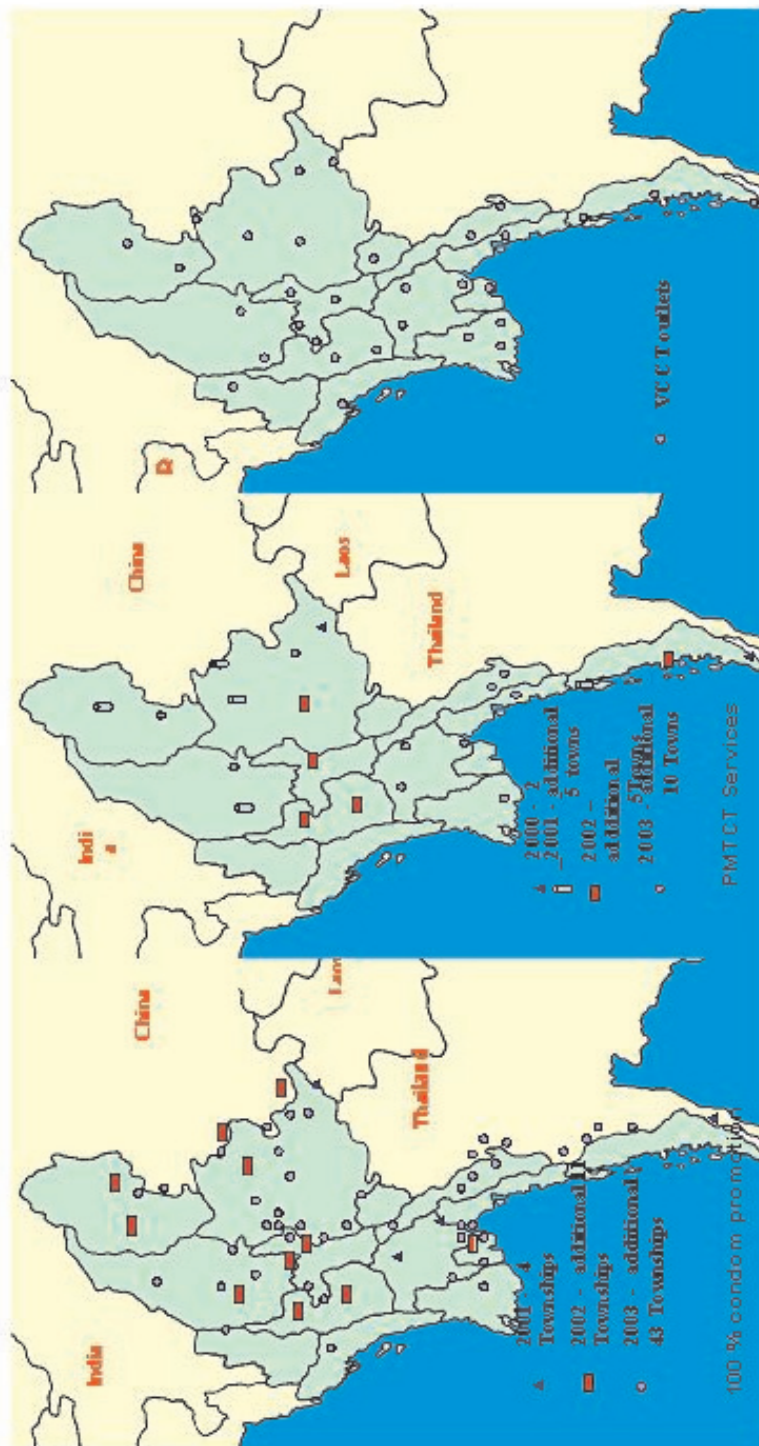


FIGURE 3. Map of Myanmar showing location of 100% condom promotion, prevention of mother-to-child transmission of HIV (PMTCT), and voluntary confidential counseling and testing (VCCT) services.